The Huxley Lecture

ON

THE SCIENTIFIC INVESTIGATION OF THE PSYCHICAL FACULTIES OR PROCESSES IN THE HIGHER ANIMALS.

Delivered at Charing Cross Hospital on Oct. 1st, 1906,

BY PROFESSOR IVAN P. PAWLOW,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF ST. PETERSBURG.

(*Specially translated for* THE LANCET.)

MR. PRESIDENT AND GENTLEMEN,—The address which I have now the honour of delivering is in memory of Thomas Huxley, at once an eminent representative of natural science and a most strenuous champion of that great biological principle, the doctrine of evolution. The subject of my address will be the Scientific Investigation of the Psychical Faculties or Processes in the Higher Animals (*die psychische Tätigkeit der höheren Tiere*).

With your permission I will first give a description of a case which is taken from life as it actually occurred in my laboratory some years ago. Among my colleagues in the laboratory there was a young medical man who took a prominent position and we saw that he had an active mind which understood the joys and the triumph of the spirit of research. When I was making arrangements for the investigation of the psychical processes in the dog by the same methods and in the same laboratory as had been employed until that time for the solution of various physiological questions, I found to my great astonishment that as soon as he heard of my intentions this faithful friend of our laboratory manifested great displeasure. All our arguments were in vain. He prophesied failure in every direction and hoped that it would come to pass. So far as we could understand him, the cause of all this was that he had formed the idea that the psychical life of man and the higher animals was a subject so exceptional and so exalted that there was not only no possibility of it being subjected to successful analysis but that it even seemed to be utterly profaned by the coarse methods of our physiological laboratory. This might perhaps have been a case of exaggeration by an individual, but I nevertheless believe that it is very typical and characteristic. The fact must not be overlooked that in dealing on consistent principles with the highest vital phenomena science will not be able to avoid misconception and opposition on the part of persons who have hitherto been accustomed to regard these phenomena from another point of view and to consider that their point of view is the only proper one.

PSYCHOLOGICAL DEFINITIONS.

I therefore look upon it as my duty in the first place to explain quite clearly the point of view from which I regard the so-called "mental processes" (*seelische Tätigkeit*) of the higher animals, and in the second place to pass as soon as possible from the preliminaries to the subject itself. It was not without intention that I used the adjective "so-called" in speaking of "mental processes." If a *complete analysis* of the psychical faculties of the higher animals be set as a problem for an investigator, he has no right to speak of such faculties as existing in these animals, and in fact he cannot do so without being unfaithful to the principles of natural science (*Naturwissenschaft*). Natural science is a product of the operation of the human mind when it is directed upon nature and investigates it without deriving any explanations or ideas whatever from any sources except the natural phenomena of our environment. If he (the investigator) were to speak of the psychical faculties of the higher animals he would be transferring ideas from his own inner consciousness to natural phenomena with the result that there would be a repetition of what men did when they first turned their thoughts to the consideration of nature and attributed to inanimate objects their own intelligence, will, and sensations. For a consistent investigator there is in the higher animals only one thing to be considered—namely, this, that or the other external response of the animal to external impressions (*die Erscheinungen der Aussenwelt*). This response may be extremely complicated in comparison with the reaction of animals of a lower class and infinitely complicated in comparison with the response of any inanimate object that could be named, but the principle involved in the question remains the same. Strictly speaking, natural science is under an obligation to determine only the precise connexion which exists between the given natural phenomenon and the responsive faculty of the living organism with respect to this phenomenon—or, in other words, to ascertain completely how the given living object maintains itself in constant relation (*Gleichgewicht*) with its environment. This assertion can hardly be contested and is further supported by the fact that it receives daily more and more general acceptance in the investigation of the lower and intermediate stages of the zoological scale. The question is simply whether this law is now applicable to the examination of the higher functions of the higher quadrupeds (*Tiere*). A serious endeavour to institute inquiries in this direction is, as it appears to me, the only reasonable answer to this question. I and my esteemed colleagues in the laboratory, who are now very numerous, began this work some years ago and we have recently devoted ourselves to it almost completely. I would now ask for your kind attention to an account, firstly, of the most important results of this inquiry, which seems to me to be very instructive; and, secondly, to an account of the inferences which may be drawn from it.

REFLEX STIMULATION OF THE SALIVARY GLANDS.

All our experiments were made on dogs. The only response of the animals to external impressions was a physiologically unimportant process—namely, the excretion of saliva. The experimenter always used perfectly normal animals, the meaning of this expression being that the animals were not subjected to any abnormal influence during the experiments. By means of a systematic procedure easy of manipulation it was possible to obtain an exact observation of the work of the salivary glands at any desired time. It is already well known that there is always a flow of saliva in the dog when something to eat is given to it or when anything is forcibly introduced into its mouth. In these circumstances the escaping saliva varies both in quality and quantity very closely in accordance with the nature of the substances thus brought into the dog's mouth. Here we have before us a well-known physiological process—namely, reflex action. The idea of reflex action as a special elementary function of the nervous system is an old and well-established truism in physiology. It is the response of the animal to external influences, a response which is accomplished by the aid of the nervous system. The force exerted from without is transformed into a nervous impression which is transmitted by a circuitous route from the peripheral extremity of the centripetal nerve through the centripetal nerve, the central nervous system, and the centrifugal nerve, ultimately arriving at the particular organ concerned and exciting its activity. This response is specific and permanent. Its specificity is a manifestation of a close and peculiar relation of the external phenomena to physiological action and is founded on the specific sensibility of the peripheral nerve endings in the given nervous chair. These specific reflex actions are constant under normal vital conditions, or, to speak more properly, during the absence of abnormal vital conditions.

CONDITIONED AND UNCONDITIONED REFLEX ACTION.

The responses of the salivary glands to external influences are, however, not exhausted by the above-mentioned ordinary reflex actions. We all know that the salivary glands begin to secrete, not only when the stimulus of appropriate substances is impressed on the interior surface of the mouth, but that they also often begin to secrete when other receptive surfaces, including the eye and the ear, are similarly stimulated. The actions last mentioned are, however, generally considered apart from physiology and receive the name of psychical stimuli. We will take another course and will endeavour to restore to physiology what properly belongs to it. These exceptional manifestations unquestionably have much in common with ordinary reflex action. Every time that there is a flow of saliva attributable to this cause the occurrence of some special stimulus among the external influences may be recognised. On very careful exercise of his attention the observer perceives that the number of spontaneous flows of saliva forms a rapidly

diminishing series and it is in the highest degree probable that those extremely infrequent flows of saliva, for which no particular cause is at first sight apparent, are in reality the result of some stimulus invisible to the eye of the observer. From this it follows that the centripetal paths are always stimulated primarily and the centrifugal paths secondarily, of course with the interposition of the central nervous system. Now these are actually all the elements of a reflex action, the only missing points being exact data as to the operation (*Bewegung*) of the stimulus in the central nervous system. May we regard these as ordinary reflexes? Speaking generally, our phenomena are reflexes, but the difference between these newly recognised reflexes and the long-known ones is manifestly immense, for they are assigned to quite different departments of science. Physiology has therefore before it the problem of evaluating this difference experimentally and of establishing the essential properties of the newly recognised reflexes.

In the first place they arise from all the bodily surfaces which are sensitive to stimulation, even from such regions as the eye and the ear, from which an ordinary reflex action affecting the salivary glands is never known to proceed. It must be observed that ordinary salivary reflexes may originate not only from the cavity of the mouth but also from the skin and the nasal cavity; the skin, however, produces this effect only when it is subjected to some destructive process such as cutting or erosion by caustics, while the nasal cavity produces this effect only through the contact of vapours or gases, such as ammonia, which cause local irritation, but never through the agency of odours properly so-called. In the second place, a conspicuous feature of these reflexes is that they are in the highest degree inconstant. All stimuli introduced into the mouth of the dog unfailingly give a positive result in reference to the secretion of saliva, but the same objects when presented to the eye, the ear, &c., may be sometimes efficient and sometimes not. In consequence only of the last-mentioned fact we have provisionally called the new reflexes "conditioned reflexes" (*bedingte Reflexe*), and for the sake of distinction we have called the old ones "unconditioned" (*unbedingte*).

The further question naturally arose whether these conditions which determine the occurrence of the "conditioned reflexes" could be investigated and whether a complete understanding of these conditions would make it possible to impart to these reflexes a character of constancy. This question must be at once regarded as answered in the affirmative. I will remind you of some rules which have been already published. Every conditioned stimulus becomes totally ineffective on repetition, the explanation being that the reflex action ceases. The shorter the interval between the separate repetitions of the conditioned reflex the more quickly is this reflex obliterated. The obliteration of one conditioned reflex does not affect the operation of the others. Spontaneous restoration of the obliterated conditioned reflexes does not occur until after the lapse of one, two, or more hours, but there is a way in which our reflex may be restored immediately. All that is necessary is to obtain a repetition of the unconditioned reflex, as, for instance, by pouring vinegar (*Säure*) into the dog's mouth and then either showing it to him or letting him smell it. The action of the last-mentioned stimuli, which was previously quite obliterated, is now restored in its full extent. If for a somewhat long time, such as days or weeks continuously, a certain kind of food is shown to the animal without being given to him to eat it loses its power of imparting a stimulus from a distance,[1] that is, its power of acting on the eye, the nose, &c. These last-mentioned facts show plainly the close connexion which exists between the stimulant effects of various properties of a substance—namely, between the effects of the properties which excite secretion of saliva when the substance is in the mouth and the effects of other properties of the same substance acting upon receptive surfaces in other parts of the body. We may, therefore, with propriety, say that the conditioned reflex is in some way dependent on the unconditioned reflex. At the same time we see also the mechanism which is necessary for the production of our conditioned reflex. When an object is placed in the mouth some of its properties exercise an action on the simple reflex apparatus of the salivary glands, and for the production of our conditioned reflex that action must synchronise with the action of other properties of the same object when the last-mentioned action, after influencing other superficial parts of the body that are sensitive to such stimuli, arrives in other parts of the central nervous system. Just as the stimulant effects due to certain properties of an object placed in the mouth may be associated as regards time with a number of stimuli arising from other objects, so all these manifold stimuli may by frequent repetition be turned into conditioned stimuli for the salivary glands. Such stimuli may proceed from the man who feeds the dog or who forcibly introduces certain articles into his mouth, or they may owe their origin to the general environment in which this takes place. For this reason the above-mentioned experiments, by which the laws of the conditioned reflexes must be determined, require for their performance a well-trained experimenter who can really investigate only the action of the given conditioned stimulus or a definite number of such stimuli, without introducing unknown to himself new stimuli in each successive repetition. If this last condition is realised the rules in question will naturally be obscured. It must be remembered that in feeding a dog or forcing something into his mouth each separate movement and each variation of a movement may by itself represent a conditioned stimulus. If that is the case, and if our hypothesis as to the origin of the conditioned reflex is correct, it follows that any natural phenomenon chosen at will may if required (*auf Befehl*) be converted into a conditioned stimulus. This has in actual fact been proved to be true. Any ocular stimulus, any desired sound, any odour that might be selected, and the stimulation of any portion of the skin, either by mechanical means or by the application of heat or cold, have in our hands never failed to stimulate the salivary glands, although they were all of them at one time supposed to be ineffective for such a purpose. This was accomplished by applying these stimuli simultaneously with the action of the salivary glands, this action having been evoked by the giving of certain kinds of food or by forcing certain substances into the dog's mouth. These artificial conditioned reflexes, the product of our training, showed exactly the same properties as the natural conditioned reflexes previously described. As regards their obliteration and restoration they followed essentially the same laws as the natural conditioned reflexes. We believed that we might justly take it for granted that the correctness of our analysis of the origin of the conditioned reflexes had been practically proved.[2]

Now that so much has been adduced on the subject we may advance further in the comprehension of the conditioned reflexes than was possible at the outset. In the manifestations of nervous energy which have up to the present time been submitted to careful scientific examination (our old specific reflex) the stimuli with which we had to do were comparatively few in number but were constant in action and there was abundant evidence of a constant connexion existing between certain external influences and definite physiological effects. Now, however, in another more complicated portion of the nervous system we encounter a new phenomenon—namely, the conditioned reflex. On the one hand, the nervous apparatus is responsive in the highest degree—i.e., it is susceptible to the most varied external stimuli, but, on the other hand, these stimuli are not constant in their operation and are not uniformly associated with a definite physiological effect. At any given moment we find comparatively few circumstances favourable for these stimuli becoming active in the organism for a longer or shorter time and producing distinct physiological results.

The introduction of the idea of conditioned reflexes into physiology seems to me to be justified for many reasons. In the first place it corresponds to the facts that have been adduced, since it represents a direct inference from them. In the second place it is in agreement with the general mechanical hypotheses of natural science; in many kinds of apparatus and machinery, even of simple construction, certain effects (*Kraftspannungen*) are not obtained unless the proper force is at work and the necessary conditions are present. In the third place it is completely covered by the ideas of paths and inhibition, ideas which have been sufficiently worked up in the physiological material of the present day. Finally, in these conditioned stimuli, looked at from the point of view of general biology, there is nothing but a very complete mechanism of accommodation or, which amounts to the

[1] Experiments made by Tolotschinoff and Babkin.

[2] Experiments made by Boldireff.

same thing, a very delicate apparatus for maintaining the natural equilibrium. Occurrences which are of essential importance to the living organism produce in it a very delicate reaction of warning (*vorbeugende*); if occurrences of the most diverse nature and in themselves of no consequence to the organism only coincide in point of time with occurrences which are of importance to the organism the former become indicators of the latter, or signalling stimuli as they may be called. The delicacy of the reaction shows itself both in the production of the conditioned stimulus and in its disappearance when it ceases to be a regular signal. A change must here be imagined to take place in the mechanism for advancing to further differentiation in the nervous system. In view of all this it seems to me to be permissible to regard the idea of conditioned stimuli as the fruit of the previous labours of biologists and to look upon my present suggestions as illustrating a complicated example of the final results of all these labours. It would be unreasonable to attempt at one and the same time to determine the limits of the immense field thus opened up and to draw the division lines of it. The following must be regarded as, and nothing more than, a provisional arrangement of the material that has been collected, giving only the points indispensable for purposes of explanation. There are reasons for considering the process of the conditioned reflex to be an elementary process—namely, a process which really consists in the coincidence of any one of the innumerable vague (*indifferent*) external stimuli with a stimulated condition of any point in a certain portion of the central nervous system. In this way for the time being a path is made by which the stimulus may reach the given point. The first argument in favour of this hypothesis is that the occurrence of the result is an everyday event (*Allgemeinheit*). The conditioned reflex may be obtained in all dogs and it may similarly be produced by all imaginable stimuli. In the second place the certainty with which its occurrence may be awaited points in the same direction. Under precisely determined conditions it may be reproduced in facsimile. We see, therefore, that nothing but this takes part in the process. It may here be mentioned that various conditioned stimuli which had been rendered effective were applied at a distance, as from other rooms; the experimenter, who for the purpose of obtaining the reflex usually either gave the dog something to eat or put a substance of some kind into his mouth, was not now in close proximity to the animal, but the result of these stimuli was the same.

METHODS OF ELICITING CONDITIONED REFLEX ACTION.

It has already been stated that all external impressions falling upon specific receptive surfaces of the body may be converted into conditioned stimuli. After conditioned reflexes had been obtained from the eye, the ear, the nose, and the skin, it was a matter of interest to know what relation the cavity of the mouth had to the general question and whether a conditioned reflex originated in the mouth. The answer to the inquiry could not be a simple one, because in this case not only the receptive surfaces for the stimuli of the conditioned and of the unconditioned reflex, but also the stimuli themselves were all brought together. I think, however, that careful observations have made it possible to separate the conditioned stimulus from the unconditioned stimulus even here. When substances not of the nature of food were many times in succession forcibly introduced into the dog's mouth remarkable phenomena inevitably followed. If, for instance, a certain amount of acid was for many times in succession poured into the dog's mouth during the first few days, on each fresh repetition of this procedure there was a constantly increasing flow of saliva; the same thing was repeated on a whole series of subsequent days until a certain maximum was attained, whereupon the secretion remained constant for a considerable time. If the experiments were stopped for some days the quantity of saliva secreted became much less. This fact could be very simply explained as follows. On the first administration of acid the secretion of saliva depended principally, or even exclusively, on the unconditioned reflex which the acid caused, while the subsequently occurring increased secretion of saliva pointed to a conditioned reflex gradually formed under the influence of the same acid.[3]

We will now pass to the consideration of the conditions which are necessary for the establishment of the conditioned reflexes. This question taken comprehensively is naturally of vast extent. The following discussion is of necessity only a slight indication of what this subject includes in its full compass.

Although there are differences in the time required for the establishing of the conditioned reflexes some proportionality may be perceived. From our experiments it is very evident that the intensity of the stimulation is of essential importance. We have some dogs in which the cooling or warming of a definite portion of the skin acted as a conditioned stimulus of the salivary glands. A temperature of zero or 1° C. in an experiment repeated 20 or 30 times caused the saliva to flow, whilst with a temperature of 4° or 5° C. in an experiment repeated 100 times no trace of action was perceptible. Exactly the same thing occurs with high temperatures. A temperature of 45° C. which was applied as a conditioned stimulus similarly showed no action after even 100 applications; a temperature of 50° on the other hand caused a secretion of saliva after from 20 to 30 applications.[4] In contra-distinction to this we must state with regard to acoustic impressions that very powerful stimuli such as the violent ringing of a bell were not, in comparison with weaker stimuli, quick to produce conditioned increase of function in the salivary glands. It must be supposed that powerful acoustic stimuli produce in the body some other important reaction which hinders the development of the salivary reaction.

There is another group of related phenomena which deserves mention. When an odour of no pronounced character—that of camphor, for instance—is diffused by means of a special apparatus, this diffusion of the odour must be made to coincide 10 or 20 times with the action of the unconditioned stimulus, such as acid poured into the dog's mouth. If some of the odoriferous material is added to the acid, the new odour after one or two administrations (*Eingiessungen*) acts as a conditioned stimulus. It must be explained that the important thing in this experiment is the exact coincidence in time of the conditioned reflex or anything else.[5]

In order to save time I will entirely pass over what may be called the technical questions, such as by what methods the conditioned reflexes are best obtained; whether with substances that can or that cannot be used for food; how many times an experiment may be repeated in a day; with what length of intermissions, and so on. Next in order comes the immense question, What is it that the nervous system of the dog recognises as individual phenomena of external origin (*Einzelheiten der Aussenwelt*)? or, in other words, What are the elements of a stimulus? With regard to this a good deal of evidence is already in existence. If the application of cold to a definite area of the skin (a circle having a diameter of from four to five centimetres) acts as a conditioned stimulus of the salivary glands, the application of cold to another portion of the skin causes secretion of saliva on the very first occasion. This shows that the stimulus of cold generalises itself over a considerable portion of the skin, or perhaps even over the whole of it. But the application of cold to the skin is very clearly distinguished as such from the application of heat and from mechanical stimulation. Each of these stimuli must act separately as a conditioned stimulus. Just as in the case of cold, the application of heat to the skin also generalises itself when it is acting as a conditioned stimulus. This is equivalent to saying that if an application made to one portion of the skin stimulates the salivary glands an application made to another portion of the skin will also increase the secretion of saliva. Totally different results were yielded by mechanical stimulation of the skin, such as rubbing with a coarse brush by means of a special apparatus. When this treatment applied to a certain portion of the skin had become converted into a conditioned stimulus, the same treatment applied to another portion of the skin remained completely ineffective. Other forms of mechanical stimulation, such as pressure with a sharp or a blunt object, proved themselves less effective. Apparently the first mechanical stimulus formed only a small portion of the latter one. Stimulation by musical sounds or by noise in general is remarkably convenient for determining the discriminating or analytical faculty of the nervous system of the dog.[6]

[3] Experiments made by Boldireff.

[4] Experiments made by Kascheninowa and Woskoboinikowa-Granstrem.

[5] Experiments made by Wartanoff.

[6] Experiments made by Boldireff, Kascheninowa and Woskoboinikowa-Granstrem.

In this respect the precision of our reaction goes a great way. If a certain note of an instrument is employed as a conditioned stimulus it often happens that not only all the notes adjoining it but even those differing from it by a quarter of a tone fail to produce any effect. Musical timbre is recognised with similar or even much greater precision.[7] An external agent acts as a conditioned stimulus, not only when it comes on the scene, but also when it disappears from a position which it has occupied. Of course, a separate analysis would have to be undertaken in order to explain the nature of such stimuli.[8]

VARIOUS MODIFICATIONS AND COMBINATIONS OF CONDITIONED STIMULI.

We have hitherto spoken of the analytical faculty of the nervous system as it presents itself to us in, so to say, the finished condition. We have now accumulated material which contains evidence of a continuous and great increase of this faculty if the experimenter perseveres in subdividing and varying the conditioned stimulus and thereby makes it coincide with the unconditioned stimulus. Here, again, is a new field of enormous extent. In this material relative to the conditioned stimuli there are not a few cases in which an evident connexion between the effect and the intensity of a stimulus can be seen. As soon as a temperature of 50° C. had begun to induce a flow of saliva it was found that even a temperature of 30° C. had a similar effect but in a much less degree. An analogous result may be observed in the cases of mechanical stimulation. A less frequent rubbing with the brush (five strokes instead of 20 strokes per minute) gives less saliva than the ordinary rate of rubbing and very frequent rubbing (up to 60 strokes per minute) gives more saliva. Trial was then made of combinations consisting of stimuli of the same kind and also of stimuli of different kinds. The simplest example is a combination of different musical notes such as a concord consisting of three notes. When this is employed as a conditioned stimulus each two notes together and each separate note of the chord produce an effect, but the notes played two and two together accomplish less than the whole and the notes played separately accomplish less than those played in pairs.[9] The case becomes more complicated when we employ as a conditioned stimulus a combination of stimuli of different kinds, that is, of stimuli acting upon different kinds of susceptible surfaces. Only a few of such combinations have been provisionally experimented with. In these cases for the most part one of the stimuli was a conditioned stimulus. In a combination in which rubbing and cold were employed the former was preponderant as a conditioned stimulus, while the application of cold taken by itself produced a hardly perceptible effect. But if an attempt is made to convert the weaker stimulus separately into a conditioned stimulus it soon becomes an energetic conditioned stimulus. If we now appiy the two stimuli together we have before[10] us an evident case of them acting in combination.

The following problem had for its object to explain what happens to an active conditioned stimulus when a new stimulus is added to it. In the cases that were examined the action of the pre-existing conditioned stimulus was hindered when a new stimulus of like kind was added to it. A new odour of a like kind hindered the operation of another odour which was already acting as a conditioned stimulus; a new musical note similarly hindered the operation of the note previously employed which was a conditioned stimulus. In my opinion it is not without interest to remark that these experiments were in part made with another object in view. We were intending to try to form a new conditioned reflex with the aid of another equally conditioned reflex which we had previously obtained. We accordingly experimented by adding dissimilar stimuli. Generally speaking, researches in this direction are well advanced. Some individual cases must be taken separately. Scratching (or rubbing with a brush) may be a ready-made and effective stimulus. When we add to it the ticking of a metronome the scratching immediately loses its efficacy as a stimulant (first phase); its power is lost for some days but returns again, notwithstanding the addition of the metronome (second phase); in the next place, scratching ceases to act when the metronome is ticking and its action now comes to an end altogether (third phase). When the glare of an ordinary electric lamp is added to scratching, which acts as a conditioned reflex, the scratching at first produces exactly the same effect as before, but afterwards the combination of scratching and luminous stimulus ceases to act.[11] Apparently it was impressions of the same kind which were observed when the action of other mechanical stimuli was experimented with instead of scratching which had been made to play the part of a conditioned stimulus. In the first place secretion of saliva was caused by pressure both with a sharp and also with a blunt object, but to a less degree than by scratching; on repetition, however, the effect of the pressure stimulus became progressively less until it finally disappeared altogether. It is probable that a portion of the stimulus produced by pressure with sharp or blunt objects is identical with the stimulus of scratching and on this account these stimuli proved themselves efficacious in the first experiments. But in the stimulus of pressure there is another separate portion present, and by it the action of the first—i.e., the above-mentioned "identical" part—was in course of time brought to an end.

In these manifestations of inhibition attention is attracted by the following manifestation which regularly repeats itself in all experiments of this kind. After a conditioned stimulus had been applied together with another one which inhibited its action, the action of the first one alone was greatly weakened and sometimes even stopped altogether. This is either an after-effect of the inhibiting stimulus which was added or it is the obliteration of the conditioned reflex, because in the experiment of the added stimulus the conditioned reflex is not strengthened by the unconditioned reflex. The inhibition of the conditioned reflex is also observed in the converse case. When you have a combination of stimuli acting as a conditioned stimulus, in which, as has been already stated, one of the stimuli by itself produces almost no effect, frequent repetition of the powerful stimulus by itself without the other one leads to a powerful inhibition of its action, even to the extent of its action being almost destroyed. The relative magnitudes of all these manifestations of stimulation and inhibition have a very close connexion with their dependence on the conditions under which they originate. The following is an example taken from a number of these interesting manifestations. We assume that you have the stimulus of scratching acting in the following manner as a conditioned reflex. In the first place nothing but scratching was employed for 15 seconds, then you poured acid into the dog's mouth, you all the time continuing to scratch up to the end of one minute. If you now attempt to scratch for *a full minute* you get a copious secretion of saliva. Try to keep up this reflex—that is to say, go on scratching for a second minute—and at the same time pour acid into the dog's mouth. If you now proceed in the last-mentioned manner several times in succession the effect of the scratching will quickly diminish during the first minute and will ultimately cease altogether. The experiment must now be repeated several times in this manner, with the result that the scratching regains its efficiency during the first minute and its power is now much greater than in the previous experiments.

We were able to observe a similar course of events also in connexion with the exact measurement of the inhibition effect.

In the last place, it may be mentioned that experiments have been made in the production of conditioned reflexes by traces or latent remnants both of a conditioned and of an unconditioned stimulus. The method was that a conditioned stimulus was either allowed to act for one minute immediately in advance of an unconditioned stimulus, or it was even applied two minutes earlier. Conversely, also, the conditioned stimulus was not brought into action until the unconditioned reflex was at an end. In all these cases the conditioned reflex developed itself. But in the cases in which the conditioned stimulus was applied three minutes before the unconditioned one, and was separated from the latter by an interval of two minutes, we obtained a condition which was quite unexpected and extremely peculiar but was always repeated. When scratching was applied to a particular spot—for instance, as a conditioned stimulus—after it began to produce an effect it was found that scratching of any other place also produced an effect, just as in the case of cold or heat applied to the skin, new musical sounds,

[7] Experiments made by Selenif.
[8] Ibid.
[9] Ibid.
[10] Experiments made by Palladin.
[11] Experiments made by Wasilieff.

optical stimuli, and odours. The unusually copious secretion of saliva and the extremely expressive movements of the animal attracted our attention. The dog behaved during the action of the conditioned stimulus exactly as if the acid which served as the unconditioned stimulus had been actually poured into its mouth.[12]

It may appear that this manifestation is of a different kind from those with which we have hitherto been occupied. The fact was that in the earlier experiments at least one coincidence of the conditioned stimulus with the unconditioned one was necessary, but on the present occasion manifestations which had never occurred simultaneously with an unconditioned reflex were acting as conditioned stimuli. Here an unquestionable point of difference naturally comes to light, but at the same time there is also to be seen another essential property of these manifestations which they have in common with the former ones—that is, the existence of a very sensitive point in the central nervous system, and in consequence of its position this point becomes the destination of all the important stimuli coming from the external world to make impressions on the receptive cells of the higher regions of the brain (*die höheren Hirnteile*).

CONCLUDING OBSERVATIONS.

I now bring to a close my cursory and very incomplete summary of the data which have been obtained in this new field of research. Three characteristic features of this subject make a deep impression upon him who works at it. In the first place these manifestations present great facilities for exact investigation, being in this respect scarcely inferior to the ordinary physiological manifestations. I am here referring to the ease with which they may be repeated, to their character of uniformity (*Allgemeinheit*) under similar conditions of environment, and to the fact that they are capable of further subdivision experimentally. In the second place, it is inevitable that opinions formed on this subject must be objective only. The introduction of a few subjective considerations which we admitted now and again for the purpose of comparison seemed on further reflection to be an act of violence or an affront (*Beleidigung*). In the third place, the subject involves an unusual abundance of questions. Under what heading is the subject to be classified? To what departments of physiology does it correspond? The reply to this presents no difficulties. It corresponds partly to what was in former days the physiology of the organs of special sense and partly to the physiology of the central nervous system.

Up to the present time the physiology of the eye, the ear, and other superficial organs which are of importance as recipients of impressions has been regarded almost exclusively in its subjective aspect; this presented some advantages, but at the same time, of course, limited the range of inquiry. In the investigation of the conditioned stimuli in the higher animals this limitation is got rid of and a number of important questions in this field of research can be at once examined with the aid of all the immense resources which experiments on animals place in the hand of the physiologist. Owing to the shortness of the time that remains it is impossible to give illustrations of such questions. The investigation of the conditioned reflexes is of very great importance for the physiology of the higher parts of the central nervous system. Hitherto this department of physiology has throughout most of its extent availed itself of ideas not its own, ideas borrowed from psychology, but now there is a possibility of it being liberated from such evil influences (*dieser höchst schädlichen Abhängigkeit*). The conditioned reflexes lead us to the consideration of the position of animals in nature; this is a subject of immense extent and one that must be treated objectively. The physiologist can and must examine this question in connexion with progressive and systematic derangement of the central nervous system in order that he may ultimately arrive at an exact knowledge of the mechanism involved. In this inquiry some urgent and practical questions will immediately present themselves.

One point still remains. What relation is there between psychological ideas and the facts now described? What points of mutual correspondence are there, who will occupy himself with these relations, and when? This relationship may be interesting even at present, but it must be confessed that physiology has in the meantime no serious reason for discussing it. Her immediate problem is to collect and to analyse the endless amount of objective material which presents itself. But it is plain that this conquest which physiology has still to make consists for the most part of the solution of questions which hitherto vex and perplex humanity. Men will possess incalculable advantages and an extraordinary power over themselves when scientific investigators will subject other men to the same external analysis as they would employ for any natural object, and when the human mind will contemplate itself not from within but from the outside.

Must I say something on the relationship which exists between medicine and the subjects of my address? Broadly regarded, physiology and medicine are inseparable. Since the medical man's object is to remedy the various ills to which the human body is liable, every fresh discovery in physiology will sooner or later be serviceable to him in the preservation and repair of that wonderful structure. It is an extreme satisfaction to me that in honouring the memory of a great physiologist and man of science I am able to make use of ideas and facts which from a unique standpoint affording a prospect of every success throw light upon the highest and most complicated portion of the animal mechanism. I am fully persuaded of the ultimate triumph of the new method of research and I avow it the more fearlessly because Thomas Huxley, who is an example to all of us, fought with rare courage for freedom in the expression of scientific opinions.

[12] Experiments made by Pimenoff.

An Address

ON

THE GENERAL MEDICAL COUNCIL: ITS POWERS AND ITS WORK.

Delivered at the Victoria University of Manchester on Oct. 2nd, 1906,

BY DONALD MACALISTER, M.A., M.D. CANTAB., B.SC. LOND., D.C.L. DURH., LL.D. MONTR. & TOR. & ABERD.,

LINACRE LECTURER OF PHYSIC, UNIVERSITY OF CAMBRIDGE; PRESIDENT OF THE GENERAL MEDICAL COUNCIL OF THE UNITED KINGDOM.

GENTLEMEN,—It happens that I have never myself had to listen to what is called an "Opening Address." But I have read a good many, and they have not always caused me to regret my deprivation. At Cambridge and at St. Bartholomew's, where I was a medical student, these ceremonial orations were not in favour. At the beginning of the session we met as usual, and set to work at once. I hope that before this hour is over you will not be tempted to wish that the like custom prevailed in Manchester. It may reassure you if I say that I do not propose to offer you a formal exhortation. Time and temperament have precluded me from trying to emulate the eminent leaders of the profession who in past years have discoursed to you from this place. My aim will be humbler and perhaps more practical. I propose to speak, informally but as I trust not loosely, on various matters concerning our common profession and its government with which at one time or another it behoves us all to be acquainted, and about which many mistakes are made—for want of knowledge.

When I was honoured with the invitation to address you at the beginning of a new academic year I was told that my audience would consist chiefly of medical students and practitioners—"with a sprinkling of intelligent laymen." That information—or warning—had something to do with my choice of a subject. For the General Medical Council has points of interest for students, practitioners, and laymen alike: and my only fear is that I may fail to make them as interesting as they really are. My chief difficulty lies in the misconceptions that exist regarding the Council's powers and its work. I seldom take up either a professional or a non-professional paper that touches upon medical matters without finding evidence of these misconceptions. Sins of commission, more often sins of omission, are freely laid to the

Council's account, of which from its very nature and constitution it cannot be otherwise than guiltless. It is scolded for doing what the law says it shall do. It is bitterly reproached for leaving undone what the law gives it neither power nor means to do. It is spoken of at one time as the Parliament of the profession. Yet it has no authority to legislate for anybody, and it cannot make even a by-law for any but its own proceedings. At another time it is scornfully described as a "doctors' trade union." Yet it cannot legally levy an annual subscription, or say a word on the matter of rates of pay, or hours of work, or disputes with employers; it offers no pecuniary benefits or strike pay; and it *can* be sued in the courts like any other corporation. I venture to think that such a "union" would hardly be thought to deserve the name by the energetic organisers of Lancashire and Cheshire trades.

The Council is in fact neither a Parliament for making professional laws nor a Union for protecting professional interests. It may surprise some of you to learn that when the Council was created, nearly 50 years ago, the declared purpose of the Legislature was not to promote the welfare of professional men or professional corporations, it was not to "put down quackery" or even to advance medical science. The object in view was simply the interest of the public. The preamble of the Act of 1858 consists of two lines only: "*Whereas it is expedient that Persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners: Be it therefore enacted .....*" The preamble as you see recognises two kinds of practitioners, the "qualified" and the "unqualified." Up to that time no easily-understood line was drawn between the two, and when the public desired to make a choice, they were frequently at a loss. The Act set up machinery for as it were "hall-marking" the qualified practitioner, so that he might easily be recognised when his services were required. But the public were left free then, as they are free now, to seek "medical aid" from the unqualified practitioner if they liked. And the unqualified practitioner was left free then, as he is free now, to practise for gain among those who chose to employ and pay him. He was forbidden under penalties to pretend that he was qualified, by taking a title he did not possess; he might not use the courts for the recovery of his charges; he could not give a valid certificate of death: but except for these and a few other not very inconvenient disabilities he was untouched by the new law.

On the other hand the "qualified" men, as a set-off to their new legal status and official recognition, were subjected to a new central control, educational and disciplinary. They obtained no monopoly of practice among the public in general. They were afforded no special "protection" against the competition, not always scrupulous or insignificant, of the uncontrolled unqualified practitioner. Indeed for a time those of them who were educated and licensed by medical schools and corporations were in a sense exposed to greater competition than before. For at the outset, all who claimed to have practised before a certain date in 1815, whether they had been educated or not, were enrolled among the qualified. In this way a number of elderly practitioners, who had no licence or diploma whatever, were accorded the same legal status as the rest, and practised side by side with them. These of course have now disappeared; but their existence must not be forgotten when we are considering the so-called "privileges" of the profession which were conferred in 1858.

The qualified practitioners might fairly have claimed that it would be good for the public, as well as for themselves, if monopoly of practice and protection against the competition of the untrained *had* been conferred upon them. In other countries, and in other parts of the King's Dominions, the restriction of practice to the qualified is with general consent and approval enforced by law. Any unqualified person who habitually and for gain practises or holds himself out as practising any branch of medicine is liable to severe penalties. But in these days of "Christian Science," and "Nature Cures," and "Bile Beans," it requires a good deal of optimism, and some resolute ignoring of the signs of the times, to believe that in this free (and easy) country legislation to that effect is either probable or possible in the near future.

The result, foreseen or unforeseen, of Acts passed since 1858 has been rather the other way. An unqualified *person* can be restrained from using a title, such as "physician" or "dental surgeon," which implies qualification and is reserved by law for qualified men. But if he takes to himself six other persons, as unqualified as himself, and registers the compound individual as a joint-stock company, it is held that, in England at least, he can call himself what he likes. He is no longer a "person," but a corporation—with the usual and highly convenient negation of soul or body. Thus the distinction set up by the Medical Act is blurred by the operation of the Companies Act. The public may well be excused if they think they are dealing with qualified practitioners when they seek advice at the establishments, legally incorporated, of "Dr. Galen Æsculapius Jones, Limited," or "Professor Smith and Co., Consumption Specialists," or "Tooths, Cash Dentists." Strenuous efforts have been made, within and without Parliament, to get this remedied; but so far without much success. The Legislature is in fact very tender towards unqualified practitioners of every kind—so long as they do not presume to practise *law*. The lawyers have seen to it that *that* profession at least is sacred.

I have mentioned that in 1858, when medical men were first officially registered, everyone who claimed to have been in practice some 40 years before was enrolled, even though he held no diploma or other certificate of competency. The vested right even of the unqualified was thus carefully respected. A similar thing happened 20 years later when dentists were enrolled, and to-day the *Dentists Register* is made up, to the extent of nearly one-half, of men with no other qualification than "in practice before July 22nd, 1878." Four years ago, as the outcome of a bitter cry for the better regulation of midwives, whose want of skill and cleanliness brought suffering and death to countless mothers and infants, the Midwives Act was passed. Again all women went on the roll who applied, and had been in practice for a year—trained and untrained together. Those who did not choose to go on the roll were allowed two or three years more during which they could use the title of midwife, though unenrolled or uncontrolled. And not until 1910 will it be illegal for a woman, who is not enrolled and has no certificate of training, to practise for gain that perilous office—perilous I mean to those who place their lives in her hands.

All this care for the unqualified can I have no doubt be excused on political and legal grounds. That I am not concerned to deny. I mention it to illustrate the general temper of our law givers—and of their constituents also. We all of us in our hearts incline to distrust the rule of the expert, and we rather admire the amateur. Most of us flatter ourselves that in one way or another we are something of amateurs ourselves. It is more than a half-truth to say that England would rather be free, free even to let itself be injured or befooled, than under compulsion to be sober, or healthy, or secure. And so long as this mood prevails I do not see much chance for the Bill that is to "put down quackery" with a strong hand. Parliament may go so far as to "distinguish" the trained from the untrained practitioner: it will then leave you free to make your choice—at your own risk.

The instrument which Parliament set up for the purpose of marking the distinction is called the *Medical Register*. And the making and keeping of this Register is entrusted to the *Medical Council*. On the Register are placed the names of those who have passed certain tests of professional fitness. These are called *Registered Practitioners*, and these alone the law declares to be duly or legally qualified. The Council has to see that the tests of professional fitness actually applied by the Examining Bodies to aspirants for registration are "sufficient." They must ensure that those who pass them possess "the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery." The Council has also to see that no registered person, who by crime or misconduct has become unworthy of the legal status which registration confers, shall remain on the Register. In other words the two great functions which the Council in the public interest discharges are—first to prevent the unfit from gaining access to the Register, and, secondly, to remove the unworthy from it. Except as to a few subsidiary matters such as the preparation of the *Pharmacopœia*, the control of Diplomas in Public Health, the scrutiny of the Midwives' Rules, and the like, all its powers and all its work, in relation to the medical and dental professions, have reference to these two functions. It is a Council of *Education* and a Board of *Registration*.

It is a Council of Education; but it neither teaches nor examines. It cannot lay down a code or curriculum compulsory on all medical students. It cannot inspect a single medical school. Its statutory powers are strictly limited. It can order the visitation and inspection of the various examinations held by Universities and Corporations in the

United Kingdom, for the purpose of testing candidates for their respective medical degrees or diplomas. And it can require from these bodies information concerning the course of study, and the age of candidates, which they prescribe. If from the inspection of the examinations, or the information supplied as to the curricula, the Council comes to the conclusion that either are "insufficient," it has no power to disallow them, or to order that they shall be amended. It forwards its report to the body concerned, takes note of any observations the body may make thereon, and if it is still convinced that the training or the test is "insufficient," it brings the question before the Privy Council.

In this and in other matters the Council is in close administrative relation with the Privy Council. If in anything the Medical Council neglects its duty, the Privy Council may formally direct that the duty *shall* be performed, and may in default itself perform it. In the case before us the Privy Council has power to supplement as well as to supersede. It can do what the Medical Council is unable to do. If it sees fit, it can declare that an "insufficient" diploma shall be no longer recognised as legally registrable; and, if circumstances alter, it can rehabilitate the diploma, and make it valid again.

The Medical Council is also a Board of Registration. In fulfilment of this function, partly by the force of necessity, and partly in virtue of the interpretation of the law by the Judges, it has become a Professional Court of Justice, a domestic forum for the trial and determination of grave charges brought against registered practitioners in their professional capacity. By successive judicial decisions it has been laid down that in its procedure the Council, sitting as a tribunal, must as nearly as possible follow the forms and rules customary in other courts. But it has no authority to compel the attendance of witnesses, to administer oaths, or to call for the production of documents. It has only one judgment to give when a charge is proved to its satisfaction—namely, "guilty of infamous conduct in a professional respect"; and only one sentence when judgment is given—namely, "erasure from the Register." From this sentence and judgment, given after proper inquiry and without malice, the High Court of Justice has pronounced that there is no appeal. In the earlier years of the Council's life its decisions were frequently called in question before the ordinary courts of law. The results were on the whole fortunate, for while its actual findings as a professional court were never reversed, the judgments delivered on these appeals not only defined, but in effect expanded, the jurisdiction of the Council. They laid down its procedure, they interpreted broadly the meagre language of the Statute, and they settled beyond dispute the finality of its decisions on all causes within its competence.

All the Act says is: "If any registered medical practitioner shall be convicted in England or Ireland of any Felony or Misdemeanour, or in Scotland of any Crime or Offence, or shall after due Inquiry be judged by the General Council to have been guilty of Infamous Conduct in any professional respect, the General Council may, if they see fit, direct the Registrar to erase the name of such medical practitioner from the Register." In 1863 the Lord Chief Justice and his colleagues of the Queen's Bench laid it down that this clause "makes the Medical Council sole judges of whether a medical practitioner has been guilty of infamous conduct in a professional respect; and this Court has no more power to review their decision than they would have ..... of determining whether the facts had justified a conviction for felony or misdemeanour under the first branch of the section ..... The Council is the tribunal to whom the Legislature has left the decision, as being the best judges in the matter, and this Court cannot interfere."

In another appeal Lord Justice Bowen declared that, provided "due inquiry" had been made by the Council, "the jurisdiction of the domestic tribunal which has been clothed by the Legislature with the duty of discipline in respect of a great profession, must be left untouched by Courts of Law."

Referring to the language of the Statute, Lord Justice Fry added: "'Inquiry,' and 'judgment,' and 'guilt' are all words which express and which are relevant to a proper form of judicial proceedings, and therefore, although this body proceeds by different rules of evidence from those on which Courts of Law proceed, I cannot for a moment doubt that the Council were proceeding judicially; nor can I help adding that the manner in which the Council has proceeded on this inquiry, as on all other inquiries, shows that the Council are fully aware that they are performing judicial duties, and endeavour evidently to perform them in a very admirable manner."

These and like judgments settled the jurisdiction and the procedure of the Council sitting as a tribunal. The meaning and scope of the statutory verdict of the Council "guilty of infamous conduct in a professional respect" were given by the definition of the Court of Appeal in 1892. "If it is shown that a medical man, in the pursuit of his profession, has done something with regard to it which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, then it is open to the Council to say that he has been guilty of 'infamous conduct in a professional respect.'"

I have given these important decisions at length for two reasons. They show, in the first place, the position assigned by the law to the Council's judicial inquiries and the range of its jurisdiction. In the second they illustrate the process of legal development by which three words in the Act of 1858—'inquiry,' 'judged,' and 'guilty'—have inevitably led the Council to become a court of professional discipline, with duties and powers which were certainly not explicitly set forth in the Statute, if indeed they were implicit in the intentions of the Legislature. The guardianship of the Register and of its accuracy, then committed to the Council, had in it the potentiality of a wider and weightier stewardship. The Council of Medical Registration had no choice but to grow into the High Court of Medical Conduct. And observe that the development came about as the result of a series of judicial interpretations. A study of the earlier minutes of the Council shows how tentative, how hesitating, how half-unconscious, were its first steps towards the assumption of judicial functions. It hardly knew that it was a judicial tribunal *in posse*, it scarcely realised what precautions as to procedure were necessary to make its inquiries "due" within the meaning of the Act. The course the evolution actually took is however exactly that by which the Common Law of England has reached its present form. As Sir Henry Maine (*Ancient Law*, Chapter II.) reminds us: "We in England are well accustomed to the extension, modification, and improvement of law by a machinery which, in theory, is incapable of altering one jot or one line of existing jurisprudence. The process by which this virtual legislation is effected is not so much insensible as unacknowledged. ..... We do not admit that our tribunals legislate; we imply that they have never legislated; and yet we maintain that the rules of the English Common Law ..... are coextensive with the complicated interests of modern society."

The development of the germ provided by the Legislature has been from within as well as from without. The decisions of the Courts of Law have caused the Council to expand into a recognised and independent tribunal. Its own judgments in a succession of actual cases, decided by it after due inquiry, have gradually built up a body of precedents and rulings which may fairly be described as forming the Common Law of Medicine. I said at an earlier stage that the Council had no power to legislate or to make by-laws except for its own proceedings. That is strictly true of the Council considered as an enacting body. It is equally true of the ordinary Law Courts; we do not regard them as parts of the Legislature; they do not enact new statutes. But, as we have seen, they do in effect *develop* law if they do not claim to make it. And the developed law may be and indeed is more comprehensive and more adaptable than the statute law of which it professes to be no more than the interpretation.

The Judges' definition of professional misconduct, like their definition of the province and jurisdiction of the Council itself, contains within it a principle which is in essence evolutionary and progressive. Whatever may be reasonably regarded as disgraceful or dishonourable by professional men of good repute and competency, is "infamous conduct" in the technical sense. As the standard of professional competency becomes higher, as the conscience of men of good repute becomes ethically more exacting, so the area within which the Council can exercise its discipline expands. And thus it has come to pass that practices which, 40 or 50 years ago, were so common and so lightly regarded that they excited little notice and less reprehension, are now repugnant to the general sense of the profession, and are sternly repressed by the Council. I may take two instances to illustrate my point. Formerly, in certain parts of the country, it was customary for a qualified man in large general practice to employ a number of unqualified persons

as his assistants. These, as they acquired a certain amount of rule-of-thumb experience, were gradually entrusted more and more with the sole care of patients. The practitioner sometimes did not see the patient until it was time to sign a death certificate in order to avert an inquest. Individual cases of gross abuse were one by one brought before the Council and condemned. Others in which various forms of evasion were attempted followed upon these, and as they arose these ingenuities were severally met and dealt with. At length it was made clear to those who clung to the evil tradition that their practice was too dangerous to be profitable, and that the "unqualified assistant" must go. Having accumulated a sufficient body of experience regarding the mischief which had to be eradicated, the Council summed up all in a "warning notice," respecting the professional offence of "covering." All qualified practitioners were notified that the abuse of their qualifications whereby an unqualified person was enabled to treat patients as if he were qualified, under "cover" of his employer, was in its nature fraudulent and dangerous to the public, and that such an offence rendered them liable to be judged guilty of infamous conduct. The result was remarkable. Unqualified assistants were dismissed wholesale, often no doubt at the cost of some hardship to individuals, but in the end for the good of the public and of the profession alike. The evil from being almost endemic in particular districts became sporadic, and is now fast passing away. The general conscience, which tradition had somewhat dulled, is now alert. Cases of "covering" by medical men have almost ceased to be reported to the Council: though in the dental profession, which is still in the stage of transition, they are somewhat more frequent.

The "warning notice" was not in form a law or regulation made by the Council: it was merely a condensed statement expressive of the successive judgments of the Court. But it served its purpose, and its authority has not been impugned.

More recently the practice of issuing objectionable advertisements or of employing or sanctioning the employment of canvassers with the object of procuring patients was brought before the Council in connexion with particular flagrant cases. Each case had to be dealt with on its own merits—or demerits. The character of the objectionable advertisements varied; in some cases the canvassing or touting was direct, in others it was carried on through the agency of a club or association or dispensary. Sometimes the case was strenuously fought, in others the accused practitioner preferred to discontinue the practice complained of and submitted himself to the clemency of the Council. Once more when the time was ripe, and the various forms assumed by the mischief were fully apprehended, a "warning notice" was issued as before. This pointed out the public detriment and professional discredit attaching to unworthy methods of attracting practice, and gave notice that practitioners who employed them, or sanctioned their employment, were liable to the penalty of erasure from the Register. A similar notice had already been issued to dentists, as the result of a series of cases duly heard and determined. In this instance the Council had the support of the Court of Appeal, given in a series of important judgments relating to an advertising dentist of some notoriety.

These examples, and I could add to their number, illustrate my statement that even with its apparently limited powers as a Court, and notwithstanding the apparent inadequacy of the Statutes which govern it, the Council does in fact formulate, and by formulation makes explicit, fresh applications of the law to the growing complexity of modern conditions. And, what is more important, in doing so it carries with it the consensus and approval of "professional men of good repute and competency." The average conscience is quickened, and what was once tolerated is in the end repudiated and discountenanced.

The experience of the Council on the judicial side of its work has been singularly paralleled on the educational side. There too positive *powers* that are seemingly meagre and inadequate have not prevented it from developing an *influence* which is real and potent.

Its powers only enable it to visit and inspect examinations, and to call for information as to courses of study: it is not authorised to prescribe or to amend either. It cannot itself disallow an "insufficient" curriculum or an "insufficient" test: it can only report its opinion to the Privy Council. These are the limits imposed on its educational action by the terms of the Medical Acts, and at first sight they are narrow enough. But in practice they have proved to be more efficient than they seem in theory; and the "long result of time" has gone far to make them adequate for the purpose. This result has been reached, as in the other case, by a gradual process of evolution, and by the exercise of moral pressure. It is dependent in great measure on three factors—one the constitution of the Council itself, another the loyalty and conscientiousness of the teaching and examining bodies, and the third the publicity of the Council's minutes and proceedings.

Let me say a little, first, about the constitution of the Council. As you all know, the testing of students in medicine, and the granting, to those who pass the test, of medical diplomas and degrees, have been entrusted by the State to Universities and to certain professional Colleges and Societies within the three kingdoms. Some of the Universities are of great antiquity and repute, like Oxford and Cambridge, others are modern and filled with high ambition, like Victoria and Birmingham. The professional Colleges of Physicians and Surgeons are all of considerable age, with traditions of service to the cause of medicine that extend over centuries. Altogether there are now 24 bodies that are legally entitled to test candidates and to confer diplomas. In England, and also in Ireland, two of the bodies, and in Scotland three, have combined for examination purposes to form three Conjoint Boards, one in each division of the Kingdom. But for all other purposes the bodies preserve their autonomy, and make their own regulations. To the fifteen Universities it is probable that a sixteenth, namely the University of Wales, will shortly be added.

Each of the 24 Licensing Bodies, as they are called, appoints a member of the Medical Council. Five members are appointed directly by the Crown, on the advice of the Privy Council, and five members more are appointed by direct election, under a universal suffrage, by the registered practitioners resident within the Kingdom. The total number of members is thus at present 34. Of these, 14 only are required by law to be medical practitioners themselves. The Crown and the Universities may appoint laymen if they like. They have not chosen to do so; but the freedom reserved to them illustrates what I have already remarked on—namely, that Parliament in creating the Council had in mind the safeguarding of general public interests, not of professional or scientific interests. Indeed, it was at one time proposed that one of H.M. Secretaries of State should be the President of the Council. One of my predecessors, Sir Henry Acland, used to maintain that the Crown should appoint to the Council lay members of the House of Lords, such as the late Earl of Shaftesbury, as being persons of knowledge and experience of public affairs who were independent of transitory politics (*Royal Commission Blue Book*, 1882, p. 5). They would, in his opinion, increase the administrative efficiency of the Council, correct its tendency to professional bias, and be always at hand to bring forward in Parliament measures of medical importance. You will see how remote from Sir Henry's mind was the conception of the Council as a mere union of doctors for professional ends. We have travelled a long way from his point of view; whether for better or worse it is not for me to say—at least on this occasion. But the original idea on which his view was based is not without significance, and it survives in this, that in the Universities generally it is not the medical faculty that appoints the member but the academic governing body, whatever that may be. In my own University of Cambridge, the member is elected by the Senate, *more burgensium*, that is, as the members of Parliament are elected. The Senate numbers over 7000 graduates in all the faculties, and each has his voice and vote. When I was first returned to the Council I had, like better men, to pass through the ordeal of an election contest. The five members directly elected by the practitioners of the three countries were added in 1886. In 1882 a Royal Commission had reported as follows: "While we insist that the reason of the existence of the Medical Council is the interest of the public, we cannot but recognise the vital interest of the whole Medical Profession in the constitution of that Body. It seems to us highly important that the Profession should have full and complete confidence in the Council, and seeing that the governing Bodies of the Medical Corporations, which now elect members of the Council [and which alone, be it remembered, are required to elect medical men] can hardly be said to represent the great majority of practitioners, we think it advisable to give the general practitioner an effective voice in the Body which will be the

principal authority of the Medical Profession. We see no reason to suppose that the members elected by direct representation will be less eminent than those nominated either by the Crown or the [proposed] Divisional Boards" [of the three parts of the Kingdom]. The Commission accordingly recommended that four members should be directly elected, two for England and one each for Scotland and Ireland. The Act, when it came, was framed on a somewhat different basis, and gave three members to England instead of two.

Please observe the main reason alleged for the introduction of the directly elected members: it was "highly important that the Profession should have full and complete confidence in the Council." Exactly the same reason may be assigned for the arrangement, also sanctioned in 1886, by which each one of the Licensing Bodies was granted an effective voice in the counsels of the principal authority. For in their case also it was important that they should have such "full and complete confidence in the Council" as would make them ready to coöperate with it in matters of medical education. The new Act conferred no new coercive powers on the Council. Its numbers were increased, the extent of the qualifying examinations was enlarged and better defined, the scope and method of the inspection to which they were subject were more fully expressed. But the Council as before could only in the last resort report to the Privy Council any deficiencies it discovered. The law in fact contemplated that reasonable uniformity and stringency in the existing tests were to be brought about, not by autocratic compulsion, but by common action for a common end. To use the language of a recent Bill, "peaceable persuasion in a reasonable manner" was to be the main motive force entrusted to the Council, so far as Medical Education was concerned. Ardent reformers cried then, and have often cried since, for speedier and more drastic powers. But after all is not the method adopted by Parliament characteristically British? "Government with the consent of the governed": "freedom limited only by necessary checks on the abuses which would destroy the freedom and efficiency of others." These are general maxims of our statecraft in regard to other departments of our corporate life. And the State thought well to apply them to the regulation of our profession also.

By its new constitution, then, in which (1) the State on behalf of the people, (2) the profession itself, and (3) the several bodies which educate, test, and maintain the repute of the profession, possess each of them an effective voice, the Council became better adapted than before for its purpose of regulating the training of medical men. It became in fact a better *Council* of Medical Education. The duty and responsibility of appointing not obedient *delegates* but good *members* were imposed on each of its constituent bodies and sections. Their credit rather than their narrower interest was involved in the selection they made. For the influence wielded by any member of the Council within its walls ultimately depends on his character and capacity as a man among his brethren, and not on the dignity or power of the body which sends him. That influence is instantly weakened and discounted if he comes burdened with a mandate, or hampered by a pledge. He must be a voice, and not merely an echo.

I need not labour this point. Its importance must be obvious. But I would add two remarks before I leave it. However important may be the essential independence of the members considered as components of a Council of Education, it becomes more than important, it becomes vital, when we view them in their judicial capacity. In Scotland the Judges of the Supreme Court are finely described as Senators of the College of Justice. In our medical tribunal the Councillors must also be regarded and regard themselves as for this purpose members not of this or that College, University, or Association, but of a "College of Justice" only. "Clothed by the Legislature with the duty of discipline," as Lord Justice Bowen expressed it, anything like fear or favour, partiality or ill-will, mandate or pledge becomes more than a defect, it amounts to a disqualification for judicial functions.

And in the second place, I would bear testimony that during the 20 years which have elapsed since the constitution of the Council was readjusted, and over which my knowledge of it extends, the electing bodies have been singularly successful in realising the ideal I have indicated. The special gifts of the members chosen have varied, and fortunately varied, as much as their individual opinions and experience: but all have contributed elements of value to the corporate life, and to the corporate character which is its essence. Projects have often been framed for altering the constitution of the Council, so as to give less or greater preponderance to some fancied "interest" or other. What is always undemonstrated in these schemes is that they will bring about the appointment not merely of *different* members but of *better* members, having regard to the one supreme interest—the interest of the public. It is with this essential question that our people and our Parliament are primarily concerned, and yet this is the very question on which, in my opinion, no clear evidence has yet been vouchsafed.

I have said above that the *Constitution* of the Council was a factor in the development of its educational influence. I have given you a sketch of what the Constitution *is*. Let me next consider briefly how it reacts upon the Council's work.

As regards education, the principle sanctioned by the Legislature is that laid down by the Royal Commission of 1882. "It would be a mistake to introduce absolute uniformity into medical education. One great merit of the present system, so far as teaching is concerned, lies in the elasticity which is produced by the variety and number of educational Bodies. Being anxious not in any way to diminish the interest which the teaching Bodies now take in medical education, or to lessen their responsibility in that respect, we desire to leave to them as much initiative as possible. In certain matters of general importance, such as the duration of study, and the age at which a student should be permitted to practise, common regulations ought, we think, to be laid down, but we wish to record our opinion that nothing should be done to weaken the individuality of the Universities and Corporations, or to check emulation between the teaching institutions of the country." In other words, competition between a multiplicity of teaching bodies, as such, tends to the advancement of education. The institution which, *cæteris paribus*, affords the most efficient teaching will have the best reputation and be the most resorted to. The interest involved in the competition is the interest of improvement.

As regards examination, to put it mildly, this interest is not so clear. I put it to the unregenerate instincts of the students before me. If, as they will probably be ready to declare, all examinations are essentially evil, would it not be wise to choose the least? Will not the most popular examination board be that which offers the easiest test? If the same hall-mark is impressed on nine-carat gold as on 22, why waste precious metal in working up to the higher standard? Reasoning of this somewhat crude kind commends itself to the natural man, and many of the criticisms that we hear are based on nothing more profound. It takes little account of other facts of professional economics which are nevertheless of decisive importance. Thus the supposed hall-mark is *not* the same in the two cases. Examining boards, no less than medical schools, in the end depend for popularity on their reputation for efficiency. If a board is notoriously easy-going not students only but their teachers and their parents and the profession and the public know it. The practitioner finds that he can only get a nine-carat diploma from that board, and he pretty soon learns that he starts on his career with the stamp of a nine-carat man. Conscious as we are of each other's imperfections, we are all sure that our *own* merits deserve more than the minimum of recognition, whether in this imperfect world they receive it or not. And so the easy-going board becomes the object of resentment instead of loyalty among those it has licensed, and loses not only its public prestige but the corporate backing and support of its licentiates. In its own interest the board has to recognise that it is hurtful, not helpful, to have the reputation of being over-lenient. And I may add as a matter of statistical fact, that even in older days, before the full operation of this law was observed, the easiest examination was not the one which attracted the most students.

In so far however as the *primary* tendency of competing examinations might be regarded as downwards, rather than upwards, the State has established a check. It has affirmed the principles (1) that a certain minimum of stringency shall be required, (2) that the minimum shall always be such as to secure efficiency in the practice of the essential branches, and lastly (3) that, to admit of the gradual rise of the minimum with advancing needs and advancing knowledge, the practical definition of it from time to time shall be left to the General Medical Council with the concurrence of the Privy Council.

It is here that the constitution of the Council tells in favour of these self acting, or, as I called them just now, economic forces, which tend to raise the standard of both

teaching and examination. Every board has its member on the Council. The Council informs itself by inquiry and inspection of the actual requirements of each in respect of training and of testing. If it appears, let us say, that England is at a given moment too lax in any particular, and that students are in consequence likely to pass to England from Scotland and Ireland, the members from these sterner regions are at once on the alert. They are not usually deterred from speaking their minds by any over-mastering awe of the majesty of English Universities or Corporations. They have a common interest in urging that the alleged laxity shall be remedied. The English boards, even if they were united in a solid conspiracy of Saxondom, have only 12 votes out of 34. If the case against them is made out, to the satisfaction of the members elected by the Government and the practitioners respectively, the English combination is powerless to prevent the carrying of a resolution that the fault ought to be amended. And so far as a resolution of the Council can do it, amended it would be. This is an imaginary instance: I do not say that anything exactly like it has ever happened, though, changing "names and numbers," examples not *unlike* it could be cited. I am concerned only to give you what the engineers call a "force-diagram" of the Council's constitution, as it operates, and was no doubt intended to operate, in questions of the kind.

Unrestricted individual competition, to continue the mechanical metaphor, would as some think make all examining bodies gravitate to the lowest possible position. By bringing all the bodies together, in the persons of their chosen members, round the Council table, the play of forces is so altered that the position of normal and stable equilibrium is now somewhere about the centre of gravity of the whole. The *average* standard of all replaces the former *minimal* standard: and the average tends to be that which "men of good repute and competency," having regard to all the circumstances, think reasonable and "sufficient." If it is not so high as some might think attainable, it is a good deal higher than what, without our machinery, would actually be attained.

Suppose now that the Council has passed a resolution for the improvement in some particular of the requirements of one or more of the constituent bodies. The resolution does not come as an order from an autocratic bureau—*sic volo, sic jubeo*. It comes from a Council on which the body concerned has as much voice as any other. It is like the utterance of the International Conference at the Hague, in which all the nations are represented, and in whose proceedings all take a part. You, as one of the nations, may not wholly agree with the utterance: but you feel that you can give it the most careful consideration and even embody it in your own national practice or legislation, without derogating one whit from your proper dignity or sacrificing a jot of your rightful independence. You act on the impulse not of servile submission, but of *noblesse oblige*. You gave the Council the highest sanction in your power by sending a member to represent you: you would expect the minority to respect its decisions had you been in the majority: you can do no less yourself even if you for once are in the minority.

From the point of view of the Council as a corporate entity, it is also of inestimable advantage that each of its constituent bodies is represented upon it. Its members, in one aspect of their functions, are so many envoys from the Universities and Corporations. Each is in immediate touch with his governing body; he is by hypothesis in good standing and influence there, or he would not have been chosen. While he is an envoy *of* the body, he becomes in turn an envoy of the Council *to* the body. From his own knowledge of the course of the discussion, the arguments used, the examples proposed for imitation, he is in a position to explain and commend the Council's decision to his colleagues at home. He can make clear the scope and bearing of resolutions that are not always, I regret to say, self-explanatory.

It is, I am convinced, largely owing to the representation of the bodies upon the Council, and to the potent motives which, with our British temperament, we deduce from that representation, that the influence of the Council with the bodies so far outmeasures its actual powers. The only compulsion to which the bodies have been subject is the internal compulsion of a high self-respect, which makes them unwilling to do less than their compeers for the common good. In a multitude of instances, even this compulsion has been eased of all constraint by the fuller sympathy with the Council's motives and objects which the loyal mediation of its members has induced.

Whatever may have been assigned as the reason for it in past times, the fact is worthy of mention here, that during its 48 years of existence the Council has only once had to express its final verdict of "insufficiency" with respect to any one of the licensing boards, and to report that verdict to the Privy Council with a view to judgment. The board in question no longer exists. It is therefore only just to give full credit to the loyalty and conscientiousness of the bodies, in setting forth the factors which have facilitated the Council's task of maintaining the educational and examinational standard of the profession.

The third factor I propose to mention to-day is the publicity of the Council's minutes and reports. About twenty years ago, in a notorious case, an attempt was made to restrain the Council from publishing its proceedings in relation to a penal inquiry. The attempt failed utterly. The "privilege" of the report in question was amply sustained. The Lords Justices of Appeal said: "The report is a report of proceedings which actually took place: proceedings within the jurisdiction of the Council: a report of proceedings where the facts had been ascertained: a *bonâ-fide* true report without any sinister motive: a report of a matter of public nature: a report of proceedings in which the public are interested, and in respect of which they are entitled to information." "We have come to the conclusion that the publication of these proceedings, being true, accurate, and *bonâ-fide*, is privileged."

Now if it is for the public advantage that proceedings relating to the character of a particular person should be published, it may well be held that it is still more for the public advantage that reports and proceedings relating to the action of a responsible corporation in the exercise of its public functions should have the like publication. Thus when one of the examinations has been inspected, the Inspector's report, with the remarks of the body concerned, and the remarks of the Examination Committee on both, are presented to the Council, and when duly received, are printed in its public minutes. The report is full and detailed, the strong points and the weak points of the examination are described and commented on, ample materials are furnished whereon to base the judgment of the Inspector, the Committee, and the Council, as to its sufficiency or insufficiency. The whole is discussed in the presence of the public and of the reporters of the various journals, and the decision can thus be criticised with knowledge of its grounds. The net result is certainly beneficial. If a body is commended for some new and valuable feature in its methods, for an examination-experiment which has proved successful, the commendation is public, and the credit of the body is enhanced. The other bodies have the opportunity of learning from the success of the pioneer body, and of adopting the improvements themselves. In this way a virtue is not only praised, it is propagated. It is twice blessed: it blesses the bodies that (thanks to their free initiative) were wise enough to discover or invent it: it blesses also the bodies that offer it the sincere flattery of imitation.

On the other hand, if a clear defect or insufficiency is revealed, the body concerned hears of it, the profession hears of it, the public hears of it. The criticism it calls forth is echoed and re-echoed: and the criticism is not always over-tender or under-pungent. It may in fact be so irksome to self-complacency, so disturbing to conventional dignity, that even a dignified and self-complacent body of men, who are convinced that they are "not as other men" and are persuaded that they "need no repentance," will generally find it expedient to take serious account of it. The forces called into play thus tend to eliminate the defect, or even to convert it into a redundancy of merit, before the next inspection. Please remember that I am not trying to hint at particular examples: I am only, as before, showing how the machinery may be expected to work, and illustrating my thesis that by its intrinsic construction it works for the advancement of professional education, and the upward development of the minimum standard.

A few outstanding examples will suffice to make clearer the results which all these factors in coöperation have gradually brought about. The successive judgments of the Council in disciplinary cases made it necessary that, for the information of the profession, it should formulate its view of certain courses of conduct in the so-called "warning notices." These, as we saw, were not laws enacted, but only law interpreted and declared. In regard to education the Council had no authority to lay down a compulsory

curriculum applicable to all. Strictly speaking it could only consider on its merits each curriculum proposed by any one of the bodies, and pronounce it "sufficient" or "insufficient." If "insufficient" the body must in theory try again and again until the Council was ready to say "sufficient." The inconveniences of this method are apparent, and out of them arose a virtual appeal to the Council to say, in general terms and beforehand, what *would* be sufficient. In this way the Council was impelled to formulate a statement of what subjects should be included in a sufficient course of study, and how many years at least should be spent in pursuing it. Thus without formal enactment, yet with general consent and assent, first the four years', and later the five years' curriculum came into being. It is not prescribed by a ukase: in form it professes to be nothing more than a "requirement" for sufficiency, or a "recommendation" to the licensing authorities. But for practical purposes it has the same effect as if it were an authoritative regulation. All the bodies observe it: yet not as of law but as of grace.

Again, there is absolutely nothing in the Medical Acts about the general or non-professional education of medical students—nothing about matriculation or preliminary examinations, nothing about a volume that nearly touches many of you, I mean the "Students' Register." I hope I shall not undermine your respect for that important document by making this admission. The Royal Commissioners of 1882 thought that the preliminary education and registration of students should be made a matter of statute. They said: "We agree in the opinion universally held by the witnesses, that every intending medical student ought to pass an examination in general education before entering on medical study. ..... As the purpose of this examination is only to test the possession by the candidate of a reasonable amount of general culture, its subjects should not be of a technical or professional nature. ..... The general scope of the examination should be subject to the approval of the Medical Council, but the conduct of the examination should be left to the Universities or such other bodies as may be approved by the Medical Council. ..... We consider that the full period of medical study should be passed after the date of registration. The registration of medical students ought, we think, to be placed under the charge of the Divisional Boards [of the three kingdoms] and an officer of each Board should keep a list of the names. ....."

But somehow the necessary provisions for giving statutory effect to these recommendations did not get embodied in the new Medical Act which followed the Commission. The recommendations practically described a system which had already grown up. As you have heard, the plan was universally approved by the witnesses examined, and they were many and representative of all shades of medical opinion. How had it grown up, and by what authority then—and now? We searched the Acts before for the potential germs of the Council's judicial development, and we found them in three words—"inquiry," "judged," and "guilty." The germs of the quasi-legislation of the Council on students' registration, and preliminary education, and professional curriculum lie in the words "courses of study" and "ages." As to the sufficiency of these the Council is to form, and if necessary to report to the Privy Council, its opinion. Let us suppose that the Council's opinion is that no course of study should be less than five years long, and that no one should be licensed till he is twenty-one years of age. That means first that the beginning of the course should somehow be marked in a definite way, and secondly that it should not be begun before the age of 16. To ensure that these conditions are fulfilled in the case of every student who after the age of 21 applies for the registration of his diploma, the Council must either ask each of the 24 bodies to keep its own Register of students' names and ages, and keep it open to the Council's inspection day by day, or what is vastly more convenient for everybody, it must institute a central Register of its own. As students often pass from one University or School to another, the former plan would require the establishment of a students' Clearing-house for the ratification and exchange of local certificates of registration. The latter plan saved all this, and so it was adopted. Then arises the question, on what conditions shall a student be entered in the Central Register? What must he do before he is invested by the Council with the rights and privileges—if any—of a registered medical student? At a very early stage most if not all the bodies had insisted that every one of their own students should first show, in some way satisfactory to themselves, that he had enough general education to justify his admission to a liberal profession and to profit by the scientific and technical training that prepared him for it. The Central Register had no chance of acceptance by bodies like these unless it was based on the same principle. Thus the Council was impelled to require a sufficient certificate of preliminary education as a pre-requisite. Again the question of "sufficiency" led to the defining of a minimum requirement, and to the enumeration of the authorities whose certificates as a matter of fact fulfilled the requirements. Without its seeking the Council had thus to embark on inquiries concerning general as well as professional education, and indirectly to exert an influence on the former as well as on the latter. To this day the time of two great Committees, on Education, and on Students' Registration, is largely taken up with this subject; and the Council's requirements have risen, are rising, and are bound to rise still higher.

Time fails me to tell you in detail by what curious stages, through what disputes and controversies, along what educational bye-paths, the present arrangement has been reached. It is still transitional, there are still difficulties in the way, it is not yet perfect. But on the whole it is making for progress, for the uplifting of the educational status, and thereby of the social status of the profession. And its improvement is fortunately the concern not of the Council only, but of medical men themselves. It is entirely to their credit that so many of them should be eager for a more rapid advance than the Council finds to be practicable. It has to carry a large number of bodies with it; the pace of the march has to take account of the slower as well as of the faster of these; and, as you now know, it has no real power to drive; it can only lead.

Let me make a last confession in closing. The Medical Council as an instrument of professional government is not ideally perfect. Perhaps no human organisation, with the possible exception of the Victoria University of Manchester, is perfect. But it may be said for it that it did not start *de novo*, full-armed and potent like Minerva from the brow of Jove. Like every British institution it was built on old foundations of tradition and vested right and sacred privilege. It was not a creation but an adaptation. That it had within it, however, the seed of life, the germ of growth and expansion, my informal sketch of some phases in its half-century of history has I hope convinced you. Whether its future be one of continued evolution, or of sudden and complete revolution, it has not wholly failed in the task committed to it. The work it has succeeded in accomplishing has not been measured by the scanty powers it originally received.

An Inaugural Address
ON
THE THEORY AND PRACTICE OF MEDICAL EDUCATION.

Delivered at St. Mary's Hospital Medical School at the Opening of the Winter Session,

BY N. H. ALCOCK, M.D. DUB,
LECTURER ON PHYSIOLOGY AND VICE-DEAN OF THE SCHOOL.

INTRODUCTION.

GENTLEMEN,—There are probably few subjects that have been debated so often and at such length as the one I have chosen for the present address. Every medical man has benefited or suffered from the curriculum through which he has passed and very naturally both has, and expresses, an opinion on the process. Although this is so, and although an audience of experts will critically examine all that is said, nevertheless it is sometimes of interest to retrace our steps over already trodden ground and to examine carefully the reasons that have led to the evolution of the medical curriculum as we see it to-day. For it must be remembered that medical education is in reality only a branch of technical education in general—that is, of that part of education which aims at equipping the student for a definite course of action and that the theories which underlie the

TABLE I.—*500 Consecutive Cases from Five General Practitioners in London (2), Essex, Middlesex, and Norfolk.*

1.—SPECIFIC INFECTIVE DISEASES.

Tuberculosis of lungs	5
,, glands	2
,, knee	1
,, skin	1
Gonorrhœa	4
Syphilis	4
Influenza	3
Whooping-cough	3
Mumps	2
Dysentery	1
Scarlet fever	1
Measles	1
Febricula	1
Acute rheumatism	1
Chicken-pox	1
Erysipelas	1
Total	32

2.—ANIMAL PARASITES.

Oxyuris	3
Bothriocephalus	1
Scabies	1
Mosquito bite	1
Harvest bug	1
Wasp sting	1
Total	8

3.—INTOXICATIONS, SUNSTROKE.

Alcohol	5
Police examination for alcohol	1
Sunstroke	2
Food poisoning	2
Total	10

4.—CONSTITUTIONAL.

Rheumatism	8
Lumbago	4
Gout	4
Diabetes mellitus	3
Purpura	1
Rickets	1
Total	21

5.—DIGESTIVE SYSTEM.

Diarrhœa	61
Dyspepsia	28
Tonsillitis	9
Adenoids	4
Constipation	5
Gastric ulcer	5
Hyperchlorhydria	3
Intestinal colic	3
Pharyngitis	3
Catarrhal jaundice	2
Colitis	2
Gall-stones	1
Flatulence	1
Intestinal obstruction	1
Ulcerative stomatitis	1
Cirrhosis of liver	1
Total	130

6.—RESPIRATORY SYSTEM.

Bronchial catarrh	17
Post-nasal catarrh	2
Epistaxis	3
Asthma	2
Pleurisy	2
Pleurodynia	1
Bronchocele	1
Hay fever	1
Total	29

7.—CIRCULATION.

Heart:—	
Failure	6
Mitral disease	4
Mitral and aortic	1
Hypertrophy and dilatation	1
Varix	2
Arterio-sclerosis	2
Piles	3
Abdominal aneurysm	1
Total	20

8.—BLOOD AND DUCTLESS GLANDS.

Anæmia	8
Graves's disease	2
Myxœdema	1
Enlarged thyroid	1
Total	12

9.—KIDNEYS.

Bright's disease	4
Floating kidney	3
Stricture	3
Cystitis	2
Pyuria	1
Total	13

10.—NERVOUS SYSTEM.

Neuralgia	7
Neurosis	4
Convulsions	3
Cerebral atheroma	2
Hysteria	2
Chorea	2
Epilepsy	2
Neurasthenia	2
Melancholia	1
Apoplexy	1
Anterior poliomyelitis	1
Total	27

11.—SKIN AND NAILS.

Eczema	4
Erythema	3
Carbuncle	2
Alopecia	2
Urticaria	2
Ringworm	2
Hypertrophied toe-nail	2
Herpes facialis	1
,, pubis	1
,, zoster	1
Onychia	1
Impetigo	1
Wart	1
Acne	1
Total	24

12.—SUPPURATIONS, ABSCESS, POISONED WOUNDS.

Alveolar abscess and dental caries, with extraction	10
Dentition	2
Dental periostitis	1
Pyorrhœa alveolaris	1
Nitrous oxide for extraction	2
Abscess and poisoned wounds	10
Ulcer of leg	4
Suppurating glands	4
,, cyst	2
Necrosis of hip	1
Total	37

13.—DISLOCATIONS, FRACTURES, SPRAINS.

Compound fracture, radius and ulna	1
Simple fracture:	
Clavicle	1
Colles	1
Intracapsular of femur	1
Sprains	6
Total	10

14.—OTHER INJURIES, WOUNDS, ACCIDENTS, BURNS.

Burns	5
Accidents, contusions, &c.	9
Cuts	6
Dog bite	2
Human bite	1
Needle in finger	1
Thorn in foot	1
Total	24

15.—TUMOURS.

Mediastinal new growth	1
Carcinoma of stomach	1
,, tongue	1
Total	3

16.—MIDWIFERY, GYNÆCOLOGY.

Confinements	18
Dyspepsia, &c., of pregnancy	6
Amenorrhœa	4
Dysmenorrhœa	2
Leucorrhœa	1
Endometritis	1
Retroflexion	3
Abortion	2
Subinvolution	1
Retained placenta	1
Prolapse of uterus	1
Puerperal sapræmia	1
Pelvic cellulitis	1
Climacteric	1
Total	41

17.—EYE AND EAR.

Eye:	
Astigmatism	1
Scratched conjunctiva	1
Hypermetropia	1
Foreign body	2
Stye	2
Conjunctivitis	3
Dislocated lens	1
Cataract extraction	1

17.—(*Continued.*)

Ear:	
Middle ear	6
Wax	3
Foreign body	1
Total	32

18.—NOT CLASSIFIED.

Vaccination	7
Debility	1
Infantile hernia	1
Hammer toe	1
Synovitis	1
Phimosis	1
Enlarged prostate	1
Circumcision	1
Undescended testis	1
Electrolysis for removal of hair	1
Total	22

19.—UNCERTAIN DIAGNOSIS.

(?) Renal calculus	1
(?) Abdominal pain	1
(?) Scarlet fever	1
(?) Gonorrhœa	1
(?) Middle-ear abscess	1
No discoverable disease	9
Total	14

larger subject must also apply to the smaller. Further, the success or otherwise of any concrete scheme must depend finally on the validity of the arguments which have been used by the founders. As time and space do not permit of the due consideration of the whole field of medical and surgical training I propose in this address to deal first with the general principles underlying the whole question and then to study only the application of these principles to the preliminary and intermediate sciences, leaving the actual professional work, as is fitting, to my colleagues on the medical and surgical staff.

THE ACTUAL WORK OF THE MEDICAL PROFESSION.

The first point of departure will perhaps seem a little surprising, but it is logically sound. If we seek to plan a special system of education for the medical profession we should in the first instance learn what special knowledge and attributes will be required in the practice of it and have a clear idea of the work which the medical practitioner will be required to do. This we can ascertain in two ways—either from a study of our inner consciousness imagine what a medical man should do, or adopt the more laborious but correspondingly more accurate method of inquiry and see what is actually accomplished in practice. This latter method we shall attempt, and our endeavour will lead us to a very interesting study of the work of the medical profession from a standpoint very seldom taken.

It is necessary as a preliminary measure to adopt some method of classifying medical practitioners and as giving a sufficiently close approximation for our present purpose we shall make two classes: (*a*) general practitioners, who may meet with any kind of case; and (*b*) consultants, who only treat selected cases.

A certain number of the first class who were general practitioners representing as far as possible the various kinds of practice and the different localities in England, were each asked to note down 100 consecutive cases. Five of these lists were then analysed and tabulated, taking Osler's classification of disease (with some additions to include surgical cases) as the basis of the analysis and the result you see in Table I. But before considering this I should like to convey my warmest thanks to those medical men who have so kindly given their time and trouble to this work and without whose coöperation this inquiry would have been impossible.

You will see, if you look carefully, many interesting things in this table. Perhaps the most obvious is the very great preponderance of "medical" over "surgical" cases. This is better marked in the practice of medical men near London than in country districts, because in the former so many cases go to town, but even in the most favourable instance, where a practitioner has a country hospital at his disposal, the disproportion is still very great.

The disease, or rather symptom, that is found most commonly is diarrhœa, and disorders of digestion in general

TABLE II.—*100 Cases from Consultant (Physician) compared with the Average per 100 Cases of the General Practitioner.*

1.—SPECIFIC INFECTIOUS DISEASES.	
Pneumonia	6
Tuberculosis of lungs	5
,, peritoneum	1
Enteric fever	3
Influenza	2
Pyæmia	1
Syphilis	1
Total Consultant	19
Average G.P.	6
2.—ANIMAL PARASITES.	0
Total Consultant	0
Average G.P.	2
3.—INTOXICATIONS, SUNSTROKE.	
Alcohol and neuritis	1
Alcohol, morphine, and chlorodyne	1
Tobacco amaurosis	1
Total Consultant	3
Average G.P.	2
4.—CONSTITUTIONAL.	
Gout	2
Rheumatoid arthritis	1
Diabetes insipidus	1
Diabetes mellitus	1
Total Consultant	5
Average G.P.	4
5.—DIGESTIVE SYSTEM.	
Appendicitis	5
Gastro-enteritis	4
Dyspepsia	4
Diarrhœa	2
Constipation	2
Gastralgia	1
Colitis and neurosis	1
Gastric ulcer	1
Anorexia and headache	1
Gall-stones	1
Tonsilitis	1
Total Consultant	23
Average G.P.	26
6.—RESPIRATORY.	
Bronchitis	2
Laryngitis and neurosis	1
Broncho-pneumonia	1
Emphysema	1
Post nasal catarrh	1
Contracted lung	1
Total Consultant	7
Average G.P.	6
7.—CIRCULATION.	
Heart:	
Mitral	3
Dilatation	2
Congenital	1
Aortic regurgitation	1
Atheroma of aorta	1
Total Consultant	8
Average G.P.	4
8.—BLOOD AND DUCTLESS GLANDS.	
Hæmophilia	1
Graves's disease	1
Addison's disease	1
Total Consultant	3
Average G.P.	2
9.—KIDNEYS.	
Incontinence of urine	1
Functional albuminuria	1
Total Consultant	2
Average G.P.	3
10.—NERVOUS SYSTEM.	
Tabes dorsalis	3
Meningitis	2
Hysteria	2
Hysterical hemiplegia	1
Sciatica and hysteria	1
Neurosis	2
Migraine	1
Insomnia	1
Headache	1
Vertigo and feeble heart	1
Bulbar paralysis	1
Neuralgia	1
Delirium after pneumonia	1
Mental depression	1
Total Consultant	19
Average G.P.	5
11.—SKIN.	
Lichen urticatus	1
Total Consultant	1
Average G.P.	5
12.—SUPPURATIONS, ABSCESS, POISONED WOUNDS.	
Decayed teeth and neurasthenia	1
Total Consultant	1
Average G.P.	7
13.—DISLOCATIONS, FRACTURES, SPRAINS.	0
Total Consultant	0
Average G.P.	2
14.—INJURIES, WOUNDS, ACCIDENTS, BURNS.	0
Total Consultant	0
Average G.P.	5
15.—TUMOURS.	
Carcinoma:	
Lung	1
Pylorus	1
Total Consultant	2
Average G.P.	1
16.—MIDWIFERY, GYNÆCOLOGY.	
Subinvolution	1
Dysmenorrhœa and hyperæsthesia	1
Total Consultant	2
Average G.P.	8
17.—EYE AND EAR.	0
Total Consultant	0
Average G.P.	2
18.—NOT CLASSIFIED.	
Old age	1
Astigmatic headache	1
Debility	1
Total Consultant	3
Average G.P.	2
19.—UNCERTAIN DIAGNOSIS.	
(?) Duodenal ulcer	1
(?) Pyelitis	1
Total Consultant	2
Average G.P.	3

occur five times more often than any other kind of case. This is partly due to the particular month—September—during which the lists were compiled, but even allowing for this the number of cases is large and it is plain that every student should make a careful and exact study of the pathology, diagnosis, and treatment of the diseases of this class—he will have ample occasion to use his knowledge.

There are a great many so-called "trivial" cases—cut fingers, contusions, bites of insects, bronchial catarrh, and so forth. This need not make the student contemptuous, it is in this class of case that treatment is easiest and most satisfactory in its results. One variety of disease appears more seldom than might have been expected—viz., tumours, in the whole series of 500 cases there occurred but three. You will observe the considerable number of children's diseases (in one list of 73 cases where this point was specially noted the proportion was 21 children and infants to 52 adults) and also the amount of gynæcology and midwifery. Here again the table will give a hint to the student of what he should study. But the further consideration of these facts must be deferred to a future occasion, as we are now concerned with the bearing of these cases on the teaching of science. Even at this stage of the inquiry you can see that the direct use of the preliminary sciences is small but the indirect use essential.

Table II. is a very interesting contrast, and here again I tender my thanks for the information so kindly furnished to me. It represents 100 consecutive cases from the notebook of one of the most eminent consulting physicians that we possess. Here, of course, is no surgery at all. The main characteristics of the table are two. In the first place the proportion of the cases has entirely altered. Diseases of digestion are less frequent and diseases of the nervous system and specific infections about three times more frequent, and there are similar variations in the other columns. The second point is even more remarkable, and that is the change in the character of the individual cases. There are none of the "trivial" cases, and their place is taken by grave disorders such as pneumonia, tabes dorsalis, diabetes insipidus, and bulbar paralysis, of which both the treatment and diagnosis present special difficulties.

I had intended collecting further lists from other consultants, surgeons and physicians, but a study of this one showed me that as far as medical education goes it is unnecessary. It is not possible to provide a suitable training for a practice of this kind—the man must educate himself. But whatever deductions we may make as a result of the analysis of these figures, I think that you will agree that as a mirror of the daily life of the medical profession these two tables have a unique interest.

THEORIES OF EDUCATION.

We have now an idea of the work that the student may expect to do when once he has embarked on the practice of his profession. The next step in our inquiry is to consider what training he should receive for this. The theory is very simple. Medical education should consist of two parts: (1) studies which give a broader outlook and teach scientific methods—e.g., biology; and (2) studies in which the actual facts learnt are required in practice—e.g., clinical medicine.

It is necessary to have a clear idea on this point, as it lies at the basis of any well-devised curriculum, and although certain subjects—e.g., physiology—come under both headings and although certain clinical studies may be quite as good training as pure science, still this does not invalidate the subdivision. An example will make the distinction clear. In the course of clinical medicine the symptoms of enteric fever are considered in great detail; this is necessary—it is evident that the study of no other disease would do instead. In the course of biology, on the other hand, it is customary to study closely the anatomy of *lumbricus terrestris*, but an equally good course might be arranged in which *tubifex rivulorum* was substituted; the actual facts are not required subsequently—it is the training of mind and hand and the view of different forms of life that is of value.

Considering therefore the different uses to which the study of these two classes of subjects is applied there should be a corresponding difference in the manner of teaching them. This follows from the facts just mentioned and that this has not received sufficient attention in the present curriculum is, I venture to suggest, a fault that it would be wise to correct.

THE PRESENT CURRICULUM AND COMMENTS THEREON.

Let us see, however, before making any alterations what the student is expected to do at present, and at the risk of being tedious, I will set forth the full curriculum. The

student is expected to attend lectures, courses, or what not in the following subjects:—

Biology.	Medical Jurisprudence and Toxicology.
Chemistry.	Hygiene and Public Health.
Physics.	Mental Diseases.
Anatomy.	Ophthalmology.
Physiology and Histology.	Dermatology.
Pharmacology and Therapeutics.	Otology.
Medicine.	Laryngology.
Surgery.	Anæsthetics.
Pathology and Morbid Anatomy.	Vaccination.
Bacteriology.	Fevers.
Pathological Chemistry.	Electrical and X rays.
Midwifery and Gynæcology.	

Even if we take no note of the extended character of some of these subjects and the prolonged study they require the bare enumeration makes an appalling list, and I fear that few of us realise the very heavy burdens laid on the medical student. The medical course is the longest and most arduous of any of the technical courses and it behoves us to see that the labour is expended to the best advantage.

Remembering that at this time we are only considering the question of the preliminary and intermediate sciences we will only refer to three of the many points that might be raised. 1. All the universities and colleges have adopted schemes which comprise the same subjects; any differences that exist concern minor points only. 2. Five years are officially allowed to complete the course. As a matter of fact the time is insufficient; the student in the great majority of cases takes six to seven years before he has received his official hall-mark, and usually one year after this, spent as house surgeon, assistant, or some similar appointment before he starts on his own account. The total time is probably between seven and eight years. 3. The preliminary and intermediate sciences occupy a considerable time, usually taking three years, less than half of the total time as we have reckoned it. These three points require careful consideration.

First, as the subjects have been adopted more or less by general consent they are probably sufficient, provided that the student has had before matriculation a good elementary training.[1] Under the *second* and *third* headings different opinions have been expressed; and the view has been put forward that both the time spent and the amount of each subject attempted are too great. I have carefully sought the opinion on this matter of many general practitioners, as it might be supposed that they would feel more accurately than anyone else the defects in the present system. The opinions I received surprised me a little, but on consideration it will be seen that they really follow in order from the theoretical views already stated. Briefly, the practically unanimous opinions were: (*a*) That the preliminary and intermediate subjects are of great value. (*b*) That this value is an indirect one: most of the men did not retain any knowledge of the facts learnt. (Some reservations were made as to parts of anatomy and physiology.) (*c*) The answer to the question which subject each man had found most useful differed. All the subjects were chosen in turn.[2] (*d*) There was a unanimous opinion against any shortening of the curriculum.

Now I venture to suggest that these collected opinions should carry considerable weight. It has been often said that the curriculum should be shortened and simplified; the medical practitioners I asked held very strongly a contrary view. It was represented to me that many of the grievances in practice arose from there being let loose too many young men, and that the future of the medical profession would be much better served if fewer men of a better class were qualified. This view seems a reasonable one. Some men rather regretted that they had spent so long over rare and unusual diseases to the neglect of those more frequently met with but none of those I asked seemed to feel that the time they had spent in studying science was wasted. The net result of the inquiry on my mind was rather to change the attitude I had formerly held and in the suggested alterations in the curriculum mentioned later I have accepted the postulate that the time taken shall not be lessened.

[1] See on this point "Medicine and the Public," by S. Squire Sprigge (Heinemann, 1905), where also many excellent suggestions are to be found on medical education in general.

[2] I imagine this means that each man used the particular science he knew the best; perhaps, also, that it is the scientific method that is valued and not any branch of science in particular

A SUGGESTED REFORM.

We have, then, the problem how to teach science in the way that will be of most educational value and we are given, as at present, three years in which to teach it. Here I enter on a part of my discourse I put forward with much diffidence, though if you have followed the arguments already advanced and the theories that have been considered, I think you will admit that the reform is well founded. Briefly, the scheme is this: The syllabus of the preliminary and intermediate sciences is to be revised so as certainly to contain the comparatively few facts required in practice (the frequency of different cases giving an idea of the relative importance of these facts); it is also to be shortened so that by the end of the second year the student will have learnt what is wanted. The third year is thus set free; it should be spent in taking an advanced course in any one of these sciences—biology, chemistry, physics, anatomy, physiology—and in one only.

Now I quite admit that at first sight such a scheme seems impossible, but a little reflection will show that it would not only be a great improvement on the present arrangement but really is a logical conclusion from the facts I have collected. If it is admitted that the main use of the preliminary sciences is to train the mind, surely this is better accomplished by the careful and thorough study of one subject, where the methods can be learnt in a way that would be really useful, rather than by the present curriculum where the student is expected to learn a perfect encyclopædia of disconnected facts and then forthwith forget them.

It might be objected that two years would be too short to impart a sufficient training in five subjects and that in some mysterious way the standard would be lowered, but these objections rest on very slender grounds. No doubt the present syllabus could not be taught in two years, but there would be no difficulty in drawing up a syllabus that could,[3] and as a matter of fact a very similar syllabus is already in force abroad without the additional year propounded under this scheme. I do not think that, for the reasons already given, the foreign plan is as good as our own nor that less than three years should be spent in science. What I do claim is that the time can be better distributed than it is now. If it were so distributed the standard would not be lowered; on the contrary, the quality of work would be better and in the year of advanced study the student would receive a most valuable training that is at present left out.

It is not possible at this stage to give more than the barest outlines of the proposed scheme, and in any case the details would have to be considered by the teachers in the separate subjects. But the idea is somewhat as follows. In the first year of medical study biology, chemistry, and physics would be taught, and at the end of the year an examination passed in these subjects. In the second year would come anatomy and physiology. If at the end of this year the student had made satisfactory progress, he would be permitted to spend the next year in advanced work in any one of these subjects. At the end of the third year he would pass an examination in anatomy, physiology, and the "advanced" subject he has chosen. He will then proceed to his more exclusively clinical work, taking with him—it is hoped—a knowledge of scientific methods which he would apply to his clinical studies. The particular "advanced" subject that the student would choose would depend on the goal for which he was aiming—I would admit the widest possible choice—it being clearly understood that the actual anatomical and physiological facts required for clinical work had been already learnt in the two preliminary years.

It is obvious that the success of the scheme in practice would depend on the skill with which the syllabus for both the "elementary" and "advanced" subjects was drawn up, as in the former it would be necessary to make a selection from each science and decide what facts should be taught and what omitted, in the latter to give a good idea of the whole subject as well as instruct the student in scientific methods generally. But I do not expect that these details would be as difficult to arrange as might be supposed and I think the advantages of the scheme would be found to be considerable.

[3] That is, it could be taught as well as the various professional subjects are taught in the remaining years. To really learn *all* the subjects of the medical curriculum thoroughly would take an ordinary lifetime at the least.

A MINOR DETAIL: CONCLUSION.

There remains for our consideration what is from the theoretical standpoint a very minor detail, but which has a great personal interest for us—that is, whether medical education shall be carried on at separate hospitals or at one, two, or three centres planted at different spots in the metropolis. If the question be dispassionately studied it is quite clear that, as far as learning is concerned, it is of no consequence where a laboratory is situated. The quality of work at any place depends first on the professor in charge, secondly on the equipment, and thirdly on the suitability of the building. If all these three are of good quality it is of no consequence whether the laboratory is placed at an institute or a hospital. Which locality will prove the best in practice, supposing these desiderata are equally fulfilled, will then depend on conditions which though important are only of secondary value from the standpoint of learning, such as the cost of up-keep, facility of access, proper supervision over the students, and such like. One cannot therefore suppose that if these institutes were founded the millennium would follow.

As regards finance, it is quite plain that the students' fees on the present basis will always be insufficient to provide for their proper training in science under either scheme. Outside financial assistance therefore will be required, both for institutes and hospitals; which of the two the public prefer to support remains to be seen; it seems to me that, as there is not an unlimited amount of money to be obtained, it would be much better spent on institutions already in existence and working satisfactorily, rather than building and endowing new laboratories which might or might not be an improvement.

There is one point with regard to "concentration" schemes to which the experimental method can be applied and that is the quite subordinate detail of how a hospital medical school which instructs its students elsewhere fares under the process. Two of the London hospitals have recently done this. We would be greatly interested to learn whether or not they find that the students do better work and whether the change is popular, as indicated by a greater or smaller number of men taking advantage of these conditions. So far, I have no information to offer; perhaps some of my hearers can supply the want?

Meantime, I think one can be very well satisfied with things as they are at St. Mary's, in all except one point. I observe that in the past our students have taken more than their share of prizes and academic distinctions, that in the present you have well-equipped laboratories for each science presided over by teachers recognised by the University of London, and that the standard of work will compare very favourably indeed with any university in the kingdom. The only point that can be improved is that of finance. So far generous donors have rescued us from our difficulties, but to carry on the work of the school as it should be requires an endowment of some kind. I therefore commend this object to those well disposed to medical education and I have much pleasure in announcing one donation towards one department which I hope may be a guide to other donors who may be interested in other subjects, and which may be a stepping-stone to the realisation of the scheme that has been propounded. An anonymous benefactor, through Dr. Collingwood, has offered to pay £100 per annum for a research scholarship in physiology and a further sum of £100 per annum for the expenses of the research or for a second scholar for a period of two years. I am sure you will all join with me in returning our heartiest thanks for such a welcome present.

This brings to a close the consideration of the teaching of the preliminary and intermediate sciences as they bear on the practice of medicine. You have seen the question from a new standpoint and I hope you will not lightly brush aside the suggestions made as a direct result of the facts that have been collected and the representations made by men who have passed through the curriculum, who have discovered by experience the bearing that their training has on their daily life, and know better than anyone else the needs of their profession.

THE GUILD OF ST. LUKE.—The annual festival service of the Guild of St. Luke will be held in the Pro-Cathedral, Birmingham, on Wednesday, Oct. 17th, at 7.30 P.M., when the sermon will be preached by the Rev. Canon Rhodes Bristow, M.A. Members of the medical profession are invited to attend.

Abstracts
OF
INTRODUCTORY ADDRESSES, ETC.
DELIVERED AT THE
MEDICAL SCHOOLS
AT THE
Opening of the Session 1906-07.

SCHOOL OF ADVANCED MEDICAL STUDIES, UNIVERSITY COLLEGE, LONDON.

INAUGURAL ADDRESS BY RICKMAN J. GODLEE, M.S. LOND., F.R.C.S. ENG., PROFESSOR OF CLINICAL SURGERY IN THE COLLEGE.

Mr. Godlee took as his subject "The Past, Present, and Future of the Medical School of University College," and began by explaining the conditions which led to the formation of University College, or, as it was then called, the University of London, in 1826. He compared the educational difficulties of that period with those of the present day. The impossibility of obtaining a university education at Oxford and Cambridge without subscribing to the articles of the Church of England and taking other oaths prevented Nonconformists and others from entering those seats of learning. The idea of founding a secular university in London suggested itself to the school of Jeremy Bentham, the "Philosophical Radicals," and the Whigs, and was ultimately brought before the public in a letter from Thomas Campbell the poet to Henry Brougham (afterwards Lord Brougham) which was published in the *Times* of Feb. 9th, 1825. Some extracts from the letter were given. The object of the University was said to be "the advancement and promotion of literature and science by affording to young men residing in, or resorting to, the cities of London and Westminster, the borough of Southwark, and the counties adjoining, adequate opportunities of obtaining literary and scientific education at a moderate expense." The scheme raised great opposition from the Churchmen and Tories but it rapidly proved to be a great success. The part first opened was the Faculty of Medicine which immediately attracted large numbers of students. There was no hospital attached to the University but Charles (afterwards Sir Charles) Bell and Dr. (afterwards Sir Thomas) Watson, who were on the staff of the Middlesex Hospital, were professors at the University, and the students of the University were allowed special facilities for obtaining clinical instruction at the Middlesex Hospital. A dispensary was started at No. 4, George-street, in 1828. It was called the "University Dispensary" and was under the *ægis* of the University. The "North London Hospital" was founded in 1833 and was completed in 1846. In 1837 its name was changed to "University College Hospital" and in 1851 to "North London or University College Hospital," by which it is known at the present day. The state of medical education at the beginning of the last century was then described and it was shown how imperfect and unscientific was the teaching of that time. The medical profession was usually entered by the portal of apprenticeship and the qualifying diplomas required only a very insufficient amount of training. A very small proportion of medical men obtained university degrees and these were mostly sought either on the continent or at the Scotch universities. The University of London aimed at modifying the course of education by making the attendance at systematic lectures the primary object of the earlier years and by rendering this part of the instruction thorough and sound. It was hoped also that medical students would take up a course of instruction in arts before starting on their medical career. In 1836, when the present University of London was founded, the institution in Gower-street was incorporated by Royal Charter under the name of University College, London, resigning at the same time one of its early ambitions—viz., that of being allowed to grant degrees. Some description was then given of the old hospital which was defective from a sanitary and hygienic point of view. Projects for rebuilding it were discussed from 1886 to 1896 when Sir John Blundell Maple provided the funds with which the present hospital was built. A brief account was then given of the steps which led to the modification of the University of London, converting it into a true teaching university, and of the absorption by it of

University College. When this took place it was felt to be impossible or inadvisable for the University to undertake the management of the hospital and the teaching of the advanced medical subjects. It thus became necessary that these should be separated from University College and fused in a new corporation. This was accordingly agreed to on the understanding that the university should undertake to conduct the teaching of the preliminary subjects, including anatomy and physiology, to all comers in the College as before. The School of Advanced Medical Studies is to be accommodated in a building now in course of erection, the cost of which will be defrayed by the gift of £100,000 by Sir Donald Currie. The advantages and disadvantages of this plan of separating the teaching of the advanced from that of the earlier medical subjects were fully discussed. It was a new one, as far as this country was concerned, but there were indications that some other medical schools might be disposed to adopt the same course. The lecturer then described in some detail the precise position of the new corporation, its capacity, equipment, and objects, and stated his views as to what its prospects and functions should be. It was pointed out that in spite of the large sums of money which had been given—it might almost be said in consequence of them—still more was wanted for endowment. This was always urgently required for the hospital and it was difficult to put any limit to its needs. The requirements of the school were more moderate and if it proved successful and attracted a sufficient number of students its chief need would be the endowment of the chair of pathology. This in order to make the department really first-rate would require a sum of £100,000. The view was expressed that although the teaching of pathology ought not to be separated altogether from that of clinical medicine, it was advisable that the professor should be sufficiently remunerated to enable him to devote most of his time to his subject. There should also be ample provision for capable assistants and the prosecution of original research. The lecturer concluded with some general observations to the students.

THE MIDDLESEX HOSPITAL.

INTRODUCTORY ADDRESS BY H. CAMPBELL THOMSON, M.D. LOND., F.R.C.P. LOND.

THE subject of Dr. Campbell Thomson's address was "Hospitals and the Public." After saying a few words of welcome to the new students he said: "The position of a hospital is generally determined by the needs of a locality, but the benefits which can accrue from an institution of this kind have no such territorial limitations. Through education and research, both of which where circumstances permit it is the function of every hospital to encourage, it becomes possible to disseminate throughout the whole world the knowledge gained in the causation and treatment of disease, and it is always to me a matter for surprise that donors in distributing their charitable gifts do not inquire more carefully what use a hospital is making of its opportunities to promote the welfare of the people in general as well as of those who make their application directly at its doors. On the other hand, it is not so surprising if, in carrying out these important functions, difficulties are sometimes encountered in adjusting them to the varied interests with which they must inevitably come into contact. It is not an easy matter for a hospital to carry out with fairness even its first duty of relieving the sick poor, for if the definition of poverty be made too generous the efforts of charity in one direction are marred by the creation of injustice in another. Emergencies excepted, about the right of which to be temporarily treated at hospitals there can be no two opinions, the legitimate qualifications for charitable medical attention are sickness and poverty. Considering the advantages offered by friendly societies and the small fees which practitioners are always willing to accept from those whom they know to be in needy circumstances it might be thought that the numbers who would present themselves for continuous free treatment would not be unduly large. Unfortunately, this is not the case, and the use of hospitals by those who have not the proper qualifications continues to inflict a wrong on those who give and those who have a right to receive. By this abuse of charity the already depleted funds are unfairly drained, the members of the medical profession are defrauded of what they have every right to earn, and the recipient of the charity learns to take a false view of the object of hospitals and the position of the medical profession in relation to them. It is no wonder if, in these circumstances, practitioners have come to look askance upon hospitals and to regard their extension with alarm instead of welcoming it as a helpful ally in difficult cases and as a means of bringing relief to the genuine poor with whom the whole medical profession will ever continue to be in sympathy. Closely bordering on those who are legitimate subjects for charitable medical relief there is, however, a very large class whose position it is not easy to define and from whom at present a considerable proportion of out-patients are drawn. The members of this class are for the most part in a position to pay small sums for continuous attendance either directly to the private practitioner or through the medium of clubs, dispensaries, and other similar societies. Their circumstances are, however, frequently such that they are unable to meet the expense of any further advice they may reasonably desire, and to provide means for consultations for such patients, while they continue to remain under the care of the practitioner of their choice, should be one of the main objects of the out-patient department of a hospital. The metropolitan hospitals have grown up as isolated institutions independent of any central control, and each one having been largely dependent for its survival on its own individual efforts it has too often been found advantageous, and perhaps even necessary, to encourage a large attendance of out-patients in order to display to the public the needs of the institution and the great want it is supplying. It is true that in some instances there has been some semblance of excluding unworthy patients by the employment of inquiry officers, but the difficulty of disposing of the question in this manner must surely be obvious to everyone. Wealth will always be a relative term and for such an officer to decide justly on the evidence available whether this or that family should, in the varying conditions of life, fairly sacrifice a part of their savings or wages to pay for medical advice is not practicable. It is to be hoped that the committees of the great central funds will, by stamping their approval on well-managed institutions, gradually lead the public to realise that quality of work is as important as quantity and that the number of patients is by itself no guarantee of good work. And nowhere is this recognition more needful than in the out-patient departments where the methods employed are necessarily from the pressure of work too often monotonously mechanical. Therapeutic measures are undergoing great changes and for the knowledge of physical exercises, electricity, heat and light and the many other methods of treatment which have become such important adjuvants to drugs, to be applied properly to individual patients, it is essential that the cases should be selected and limited. The most promising solution of this great out-patient problem seems to be in the correlation of all the different forms of medical relief for the poor. As Dr. Squire Sprigge truly says in his book on 'Medicine and the Public,' which cannot be too widely read: 'We shall only begin to solve the problem of hospital abuse when the exact place of the practitioner's surgery, the provident dispensary, and the out-patient department in a general scheme for the treatment of the sick poor are defined and understood.' At this hospital the authorities have the matter constantly under careful consideration and while doing all they can in existing circumstances to prevent any misuse of the charity, have further signified their willingness to coöperate with any scheme that seems likely to place the matter on a more satisfactory basis. It is encouraging to know that such a movement is now on foot by which it is proposed to bring about an affiliation between the hospitals and the provident dispensaries and to try to define the position of the different medical charities as regards their patients. In this way patients who are not of the poorest classes will find it within their means to provide for their general medical attendance and the hospital out-patient department will be open to them for further advice without the necessity of their becoming regular patients. It is to be hoped that the initial difficulties which must inevitably arise in connexion with any scheme of this kind will be successfully overcome and that the public, the consultants, and the practitioners will all unite in trying to remove this heavy burden from the medical profession and the medical charities." The rest of Dr. Thomson's interesting address was taken up with an able exposition of the relations between the hospitals and the medical schools affiliated to them, in the course of which he pointed out that the public might well be asked to assist largely in the endowment of medical education and medical research. He alluded to the proud

position occupied by the medical school of the Middlesex Hospital in having simultaneously upon its staff Sir Richard Douglas Powell, the President of the Royal College of Physicians of London, and Mr. Henry Morris, the President of the Royal College of Surgeons of England.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

INTRODUCTORY ADDRESS BY J. W. BYERS, M.A., M.D., M.A.O. (HON. CAUSÂ) R.U.I.

Professor Byers began by alluding to the fact that his early upbringing brought him into intimate association with those whose constant aim was to help women to carry out their special mission and vocations, while he said that his own personal conviction led him to favour not only the higher education of women but their perfect liberty in the selection of a profession. "My memory," he continued, "carries me back to the time of the early struggles made by your predecessors to obtain facilities to study medicine, for Miss A. B. Barker, a pupil of my revered mother, Mrs. Margaret Byers, LL.D., the founder and principal of Victoria College, Belfast, was one of that courageous band of women who, in the 'seventies' of the last century, after a gallant fight on their part, were driven from Edinburgh. Miss Barker, who was the daughter of a highly respected medical man at Aldershot, studied subsequently in France, where she graduated M.B. of the University of Paris in 1877, and the year after (1878) she obtained by examination the Licence of the King and Queen's College of Physicians (now the Royal College of Physicians) of Ireland, and in this way became entitled to be registered by the General Medical Council of Great Britain and Ireland and to enter legally upon the practice of medicine. The action of the Irish College of Physicians in opening its examinations to women in 1877 was a great step in advance in the movement for the medical education of women, because those who after examination obtained the diplomas of this licensing body in that year were the first women to be registered since the then Miss Garrett (who afterwards as Mrs. Garrett-Anderson was for 20 years Dean of your school) took the Licence of the Society of Apothecaries, London, in 1865. After she had done so the Society of Apothecaries made a rule that no certificates of instruction would be received by them unless issued from a recognised medical school, and as at that time all British medical schools refused to receive them as students this rule prevented other women following Miss Garrett's example. The early women students of medicine in this way owed much to the enlightened action of the Irish College of Physicians, just as in later years the University of Dublin has given great help to women who have been art and science students at Oxford and Cambridge."

Professor Byers then alluded to the remarkable progress evidenced by the School of Medicine for Women during its brief life of 21 years, to the facilities which were now afforded to its pupils for practical and clinical work and for obtaining professional appointments, to the recognition of the school as a teaching institution by licensing boards, and to its affiliation with the University of London, and then proceeded to point out that every student had now a fine tradition to maintain. He urged upon them the necessity of taking pains to work systematically and to avail themselves of all opportunity in the school and in the wards to make personal and practical observations. "It is ridiculous," he said, "to ask any student to devote less than three of the five years of the medical curriculum to hospital, pathological, and clinico-laboratory work, and I welcome the recent action of the Students' Practical Midwifery Committee of the General Medical Council, and trust, as a result of its report and recommendation, that midwifery will in the future be studied clinically in the same way as medicine and surgery. Let me advise you all to do your work systematically and in the regular order arranged by your teachers; and let me urge you to do fully the work of each year in the corresponding year (unless prevented by illness), and to pass your examinations at the stated periods in your course. Speaking of examinations, let me congratulate the teachers of the school on the great success of the students at the recent Intermediate M.B. of the University of London, not only on the unusually large number of passes but on the distinctions given, which were nine out of 25. One student of this school, I believe, took distinctions in all three subjects, and two divided the scholarship in pharmacology; while at the Preliminary Science Examinations of the University of London all the students of this school passed, 10 in Part I. and 14 in Part II. From my position as an examiner in the Royal University of Ireland, I can speak in the highest terms of some of the candidates from your school who have from time to time come under my notice in that institution, and I may be allowed to mention especially Miss Fleury who at the Spring M.B. examinations, 1890, was first of First-class and was awarded a £40 exhibition; and Miss H. Russell (now Mrs. H. Dill Smyth) who at the same examinations in 1891 was the highest on the honour list."

After briefly alluding to the exact functions of the medical school rightly used, Professor Byers came to the main subject of his address—the great opportunities offered by the modern social scheme for medically educated women. "There never was a more interesting time," he said, "in which to start practice, and never was there a period in which medical women had greater opportunities than now. In every department of medicine there are still many unsolved riddles full of interest for those imbued with the true scientific spirit; while, owing to the great advances in preventive medicine, and especially in the direction of its relationship to the State, many pressing public health questions are awaiting solution, in which, I believe, to use the words of the last report of the council of this school, 'as time goes on the peculiar fitness of highly trained medical women for public service will become more and more apparent.'" He then dwelt at length upon the terrible mortality prevailing among infants and the necessity for medical inspection and supervision of school children as presenting problems specially suitable to the work and intelligence of women. With regard to the latter, he said: "Whatever differences of opinion there may be in regard to the new Education Bill, it represents, thanks largely to the efforts of the medical profession, an enormous advance in one direction, in that by it the principle has been established for the first time in England that it is the duty of the State to look after the health and to promote the development of children compelled to attend school. This has been accomplished by the House of Commons agreeing to three most important points: (*a*) compulsory medical inspection of children at entrance to the public elementary schools; (*b*) repetition of inspection 'on such other occasion as the Board of Education may direct or the local education authority may think fit'; and (*c*) the creation of a medical staff at the central Education Department to advise the Board of Education.

(*a*) The examination of the children on their entrance to the schools would reveal the question whether they were suffering from mental defect or from disease injurious to themselves alone or it may be to others (from mild attacks of scarlet fever, ringworm, diphtheria, &c.); if of a non-contagious nature, whether it was likely to be increased by school attendance. In Germany, if a child of six years of age (the time when children go to school there) is in such health that the medical officer thinks the child will be injured by commencing school life, he puts off his entry for a year. At this time, also, anthropometric observations could be made as to the height, weight, and chest capacity of the children to test their development and to observe if it was normal for their age, and to ascertain whether, in the case of an undersized child, the undeveloped condition was, from the associated history, probably due to faulty up-bringing, wrong feeding, bad housing, unhealthy environment, or malnutrition. In this way facts would soon be accumulated bearing on the question of the physical degeneration of the nation. There is a growing belief that many children at present attending our town and country elementary schools are suffering from disease, but so far we have no accumulated scientific information on this point, but we argue that it must be true from the experience of other nations quite as healthy as England. It has been shown by Mr. T. G. Horsfall (president of the Manchester and Salford Association for the Improvement of the Homes and Surroundings of the People) that in the Scandinavian countries not only was there a great deal of disease among the primary school children, but that schools equally as well managed and equally as well provided as those in this country might increase the amount of disease among the children. In 1890, in only three German towns (Leipsic, Dresden, and Nuremberg) were there school medical officers and at that time their duties were simply to examine the school buildings and the arrangements of the school from a

sanitary point of view. It was the report read in Berlin in 1890 by Professor Axel Key of Stockholm on the results of his own examination of Swedish school children, and those of Professor Axel Hertel's examination of Danish school children, which led German towns to begin to appoint school medical officers. Professor Key showed that of children on entrance to the elementary schools in Stockholm as many as 30 per cent. were sickly and of those who had been attending school for some years 60 per cent. were sickly. He also pointed out that Professor Hertel had found in Denmark that 30 per cent. of the children on commencing school were sickly and of those who had been at school some years as many as 50 per cent. As a result of Professor Key's report an examination was made at Wiesbaden which demonstrated that on a certain date 25 per cent. of the school children were sickly; at the present time there are school medical officers in more than 130 German towns. It was in 1893 that medical inspection of school children was begun in Japan and it is said that there are now more than 8000 school medical officers in that very progressive country. In Berlin, in 1904–05, 8½ per cent. of the children were put back when about to enter the primary schools. Two Russian observers have shown that those children of a given age who are highest in school are taller and heavier than those of the same age who are lower. Similar results as to the unhealthy condition of school children have been brought out in St. Louis, Berlin, and in Vienna. Mr. Horsfall says that in no German town had it been found that 50 per cent. of the children in the elementary schools were in good health; 10 per cent. were found to be seriously unwell. In Chemnitz, where public health matters were well looked after, only 7·9 per cent. of the children in elementary schools were described as healthy and well fed. In Stuttgart 34 per cent. suffered from rickets and 29 per cent. were underfed. A large proportion suffered from decayed teeth. Disease of the heart might also exist among school children which could be only ascertained by medical examination.

(*b*) The repeated inspection of children during their school career would show whether school attendance was causing or increasing certain diseases, such as curvature of the spine, rickets, scrofula, headaches, anæmia, nervousness, short-sightedness, and whether the dulness and deafness of some might depend on the presence of adenoids. Dr. Hartmann of Berlin says that statistics show that of every 100,000 German children more than 25,000 have ear troubles and that half of these were due to curable throat affections.

(*c*) The creation of a central medical department of the Board of Education was to correlate the reports of the local medical inspectors and to keep them informed of what was being done in other countries. It has been suggested that this medical inspection of the schools might be done either by special officials or the medical officer of health or by general practitioners. Their duties would be not merely to inspect the school children but to look after the school buildings as to their general sanitary condition (heating, lighting, ventilating, seating, &c., and, in the case of the erection of new institutions, the site and plan, &c.) and to superintend the syllabus as to the instruction of candidates for teachers' certificates in the principles of hygiene, preventive medicine, and temperance. Every health reformer feels that a great deal more must be done in the elementary schools to teach children the simplest rules of how to live, the importance of fresh air and of pure water, and the relative nutritive value of the various kinds of food which are ordinarily used. The Manchester education authority took a distinct step in advance when in 1902 it appointed a lady to give a course of six lessons with demonstrations to the older girls in the schools on the care of the infant, in which such practical questions as the washing, dressing, feeding, and general management of young children are discussed.

It is clear that, having settled the important question that school children are in the future to be examined medically, the central or local educational authorities will be obliged to take the further necessary step in the evolution of this great State problem; that is, they must arrange what is to be done for those found on examination to be sickly. Broadly speaking, these may be divided into two groups. First, the genuinely feeble-minded, if indeed not imbecile, children will have to be sent to suitable institutions. Secondly, arrangements will have to be made for dealing with school children whose abnormal physical condition can be readily remedied—i.e., those requiring proper spectacles (in America fully 50 per cent. of the backward children, it is said, suffer from defective eyesight), children with adenoids (each of these abnormalities, easily made right, often produce an apparent stupidity and backwardness), those with commencing spinal curvature, or with any other defect susceptible of easy correction. Quite recently the Americans, with that practical adaptiveness for which they are so noted, have decided to take this further step in the development of their school system of inspection, and a most important experiment is about to be tried in Philadelphia, where, a couple of decades ago, inspection of schools first began in America, by the Pennsylvania Society for the Prevention of Cruelty to Children, in coöperation with the Board of Education, the Board of Health, and the Court for Juvenile Delinquents. A daily clinique has been started in Philadelphia where the elementary school children will be examined as to both their mental and bodily condition, and suitable treatment, including operations when required, will be recommended. It is believed that probably as many as 10,000 children will be dealt with under this scheme during the coming year. Surely in such important State work there are ample openings for medical women, and their special capacity for undertaking such work has been already recognised by the London County Council giving six of the 20 appointments as assistant medical officers (whose duties are to inspect the elementary school buildings and to report on the health of the children) to former students of this school."

In respect of excessive infantile mortality Professor Byers said that it formed "one of the greatest national health problems we have to face." He pointed out that in England and Wales about 120,000 deaths of infants (or 145 per 1000 births) occur in the first 12 months of life, of which one-half are within the first three months, and of these one half die within the first six weeks after they are born; while one-tenth of all the children born in Ireland die before they attain the age of one year. With regard to the prevention of infantile mortality Professor Byers grouped the causes under two heads: 1. Those antenatal causes that act before the child is born which tend to diminish its vitality so that it is born premature or feeble; or which so deteriorate the mother's health that she is unable to nurse her offspring. Apart from morbid conditions and intemperance, these causes are mainly the result of poverty. 2. Conditions that come into action after childbirth, of which the principal is the substitution of defective feeding—the result of careless and ignorant motherhood—for the breast. In the solution of the problem of infantile mortality they must devise means to help the expectant mother so that she might have a healthy child and be able to nurse it; and they must encourage in every possible way the mothers to nurse their children and try to convince them not only that this is the cheapest but the best and safest way of bringing up their children. For those, and only for those, who could prove by medical certificate that they were unable to nurse their infants the health authorities ought to provide a supply of milk, the purity of which, in its production in the dairies, in its handling, and in its subsequent distribution, should be guaranteed by the supervision of a central Government authority, and the mothers must be taught the correct principles of hand feeding. The French system of "Consultations de Nourrissons" ought to be instituted, continued Professor Byers, "and expectant mothers ought to be seen personally and advised. In the case of those not visited there should be an early registration of births, not as is now the custom in England and Ireland where legally a child's birth need not be officially registered for six weeks, a period during which one-fourth of the deaths of infants in their first year of life occurs. In Huddersfield those whose duties are to give the mothers advice as to the nursing and rearing of their offspring, who encourage them in every way to follow nature's method of bringing up their own children, and who inquire into infantile deaths in their districts are fully qualified medical women, of whom there are now two—Dr. Prudence E. Gaffikin and Dr. Catharine L. Boyd—both old pupils of my own. They visit the mothers and their babies as soon as the births are notified, a payment of 1*s.* being made to the person first notifying to the medical officer of health the birth of any child within 48 hours of such birth (in its new Bill the corporation of Huddersfield has had it enacted that it is the father or midwife who must notify). The voluntary lady helpers (of whom there are 70), members of the Huddersfield and District Public Health Union, keep the cases under observation for a year, leave with the mothers leaflets

embodying recommendations for the rearing of the infants and, where it appears necessary, invoke the art of the medical women health visitors, who in special cases may order dry milk. In the present campaign, to get rid of the terrible, and, to a large degree, preventable, sacrifice of infant lives, we need the help of many organisations (municipal, nursing, hospital, and philanthropic), and I am confident that medical women will take in the future a large share of the work, and it is significant that at the recent National Conference on Infantile Mortality the following resolution was passed: 'That in the opinion of this Conference the appointment of qualified women specially trained in the hygiene of infancy is necessary as an adjunct to public-health work.'"

Professor Byers concluded his interesting, eloquent, and practical address by a eulogy of the profession of medicine if properly practised without jealousy or bigotry.

THE INJECTION OF ANTITOXIN IN DIPHTHERIA BY THE INTRAVENOUS METHOD.

BY A. O. BISSON, M.R.C.S. ENG., L.R.C.P. LOND.,
JUNIOR ASSISTANT MEDICAL OFFICER AT THE PLAISTOW FEVER HOSPITAL.

THE subject of the present paper was suggested to me by Dr. J. Biernacki, medical superintendent of the Plaistow Fever Hospital, as a contribution to the literature on the intravenous administration of diphtheritic antitoxin. Literature records are still scanty and it may be of interest to summarise some of the papers which have already been published on the subject.

Gagnoni[1] reported three cases of laryngeal diphtheria successfully treated by this method. The first case was complicated by broncho-pneumonia and in spite of very pronounced laryngeal symptoms on admission was not operated on but was given 2100 units of Behring's serum; a marked improvement was apparent a few hours after the injection. The second case was similar to the first but with no broncho-pneumonia and was treated in the same way. The third case presented the same symptoms on admission and also improved after the first injection, but a few hours later the laryngeal distress again increased and the child had to be intubated. This case was complicated by albuminuria for ten days. Gagnoni concludes by saying that in his cases the intravenous method had a beneficial effect on the temperature and the general condition of the patients.

Zamboni[2] gave an account of two cases of severe laryngeal diphtheria treated by intravenous injections with great improvement in the general condition of the patients and rapid fall of temperature. The first one received 1000 units of Behring's serum followed by a second injection, both given by direct puncture. In the second case 2000 units were given. In both there was abundant discharge of mucus and disintegrated membrane a few hours later; in from 24 to 48 hours after the injection the laryngeal symptoms had completely disappeared.

Richardière[3] says at p. 420: "In the primary toxic diphtheria I have tried repeated injections of serum even up to 100 cubic centimetres. I have injected the serum in the veins with no result. The prognosis has always been fatal."

Cairns[4] reported 50 cases of diphtheria, 20 of which were treated by intravenous injection. He is of opinion that no serious symptoms arise from the administration of large doses of serum, even from 20,000 to 80,000 units, beyond rheumatoid pains and cutaneous eruptions. He goes on to say that the amount of albumin is not increased—it may even be diminished; that by intravenous injection the maximum effect of the serum on the tissues is obtained with greater rapidity; and that if the administration of serum subcutaneously is not followed by as much improvement as one might expect, it suggests that the serum in its passage through the lymph glands undergoes changes whereby its power of neutralising toxins is considerably diminished. He says this may be due to: "(1) Selective action exercised by the lymphatic glands in filtering out the active constituent of the serum; or (2) to the fact that there is definite chemical action going on between toxin and antitoxin which takes place quicker in concentrated solutions than diluted ones." He then says that in diphtheria there may be a systemic infection due to the organism; it may cause a broncho-pneumonia and in these cases the excess of membrane must necessarily lead to considerable increase of toxins. And he thinks that "if the cure of diphtheria depends upon neutralisation of this toxin by the antibodies of the serum, the necessity for the immediate introduction into the circulation of large quantities of serum is self-evident." Cairns first tried intravenous injections in cases of broncho-pneumonia where tracheotomy did not completely relieve the symptoms. Four such cases were treated with complete success. Two of malignant diphtheria were then treated by this method and both recovered. The chief points observed were: "(1) Rapid disappearance of the signs of toxæmia; (2) rapid disappearance of glandular enlargement in malignant cases; and (3) marked diminution of restlessness in pneumonia cases." He treated 50 cases with three deaths, 20 by intravenous injection. Of the three deaths one was due to the malignant element, one to broncho-pneumonia, and one to paralysis. There were 17 tracheotomies (12 of which cases had broncho-pneumonia) with one death, a mortality of 5·8 per cent. instead of 34·7 per cent. in the previous year; amongst these cases 70 per cent. had rashes which appeared about the ninth day. The cases he chose for this treatment were those of the malignant type, cases with involvement of the lungs, toxæmic cases, and cases which were moribund on admission. Cairns attributes his good results to the intravenous treatment and finally remarks that "antitoxin serum given intravenously in large doses will give highly successful results even in cases which appear at first quite hopeless."

Mongour[5] treated three cases with success; two of these presented symptoms of paralysis on the third or fourth day. His opinion is that the injections were not followed by any disturbance; that they did not cause albuminuria; and that they should be used with subcutaneous injections in cases of toxic diphtheria and in laryngeal cases.

Cruveilhier[6] gave an account of his experiments on guinea-pigs and said that with intravenous injections of one cubic centimetre of serum a gain of six hours was obtained over subcutaneous injections of one-tenth of a cubic centimetre and a gain of four hours over the larger subcutaneous injection. He also says that intravenous injections may still be used four hours after intracerebral injections are without effect. He also tried the effects of the serum after giving injections of toxins, and he found that a subcutaneous injection of one-tenth of a cubic centimetre of antitoxin was of benefit ten hours after inoculation, 12 hours after if given by intracerebral injection, and 16 hours if given intravenously; two hours after all the other injections had failed the intravenous route was still beneficial. He says that the venous route is the best for the antitoxin as it insures a maximum effect.

Biernacki and Muir[7] have reported the largest number of cases. Their paper records two groups of cases treated at the Plaistow Hospital; the first group comprised seven cases with five deaths. Two brands of serum were employed and are identified as A and B. Three cases out of the seven had Serum A, and in all it produced circulatory disturbance with chill (in one instance a rigor) and pyrexia. The second group, in which Serum B alone was used, comprised 38 cases with three deaths; there were 14 naso-pharyngeal cases, 12 pharyngeal cases with one death, and 12 laryngeal cases with two deaths; tracheotomy was performed in three of these cases with one death. In the summary of results it is stated that those obtained in the second group seem in favour of the intravenous method, but, on the other hand, no definite proof can be given that they are better than if the cases had been treated by the subcutaneous method. The question is one that can only be settled by further work.

Marfan[8] lays stress on the insufficiency of the evidence and in his view definite conclusions cannot be drawn until

[1] Di tre Gravi Casi di Difterite Guariti con l'Iniezione nelle Vene di Siero Antidifterico, Gazzetta degli Ospedali e delle Cliniche, July 16th, 1899.
[2] Gazzetta degli Ospedali e delle Cliniche, April 8th, 1900.
[3] Remarques sur 1778 Cas de Diphtérie. Congrès International de Médecine, Paris, 1900. Section de Médecine de l'Enfance, p. 414.
[4] Treatment of Diphtheria by the Intravenous Administration of Anti-diphtheritic Serum, THE LANCET, Dec. 20th, 1902, p. 1685.
[5] Société de Médecine et de Chirurgie de Bordeaux, Feb. 20th, 1903.
[6] De la Valeur Thérapeutique des Injections de Serum dans la Diphtérie suivant les Doses et la Voie de Pénétration, Annales de l'Institut Pasteur, Jan. 25th, 1904.
[7] The Intravenous Injection of Antitoxin in Diphtheria, THE LANCET, Dec. 24th, 1904, p. 1774.
[8] Leçons Cliniques sur la Diphtérie, Paris, 1905.

further facts have been obtained. He is also of the opinion that it is unnecessary to complicate the serum-therapy by advising intravenous injections as this method requires a special practice if used in very young children, and although it may prove useful in cases of malignant diphtheria it will only be used on exceptional occasions. He thinks that the subcutaneous method will still be used for a long time to come.

The above brief review will give sufficient point to the necessity for more extensive statistics and it is as a contribution towards them that I report on 200 cases treated at the Plaistow Hospital from October, 1904, to April, 1906. The deaths in this series numbered 33. At first the injections were given by incision under a general anæsthetic; this was the method used in the Plaistow Hospital cases previously reported and in ten out of the present cases; however, it was found that the anæsthetic was a disadvantage, and at the beginning of 1905 direct puncture without an anæsthetic was adopted and has been since exclusively used.

A. *Technique of the intravenous injection.*—A few words as to the tecnique of intravenous injection may be serviceable; it may be done by incision or by direct puncture.

1. *By incision.*—The usual place chosen for the operation is the bend of the elbow. The skin is first thoroughly disinfected in the usual way; the arm is then placed on a sterilised towel and grasped by the nurse just below the axilla so as to make the veins more prominent. The syringe and needle are sterilised and kept in boric lotion; it is essential for the success of the operation that the needle should fit the syringe accurately. The antitoxin is poured into a sterilised medicine-glass and heated to blood heat by placing the glass in warm water. The patient is then anæsthetised with ethyl chloride or chloroform; an incision is made over the median cephalic vein which is thoroughly cleared. The syringe is filled with the serum. Picking up the coat with toothed forceps, the operator inserts the needle close to the end of the forceps in a direction parallel with the axis of the vein. The syringe is then carefully adjusted and emptied very slowly; the incision is closed with one stitch and a dressing is applied.

2. *By direct puncture.*—This requires a little more skill, especially in young and fat children. No anæsthetic or instruments are necessary. In infants the veins at the bend of the elbow are sometimes invisible; in these cases the external jugular or one of the dorsal veins of the foot may be used. The median cephalic is the one usually chosen; the preparations are the same as those described above, but no incision is required. The nurse holds the patient's arm fully extended with one hand just below the axilla and the other on the wrist, thus making the veins stand out. It is important that the arm should be kept absolutely still during the whole of the operation, as if the child is allowed to move the vein may be punctured in two places during the introduction of the needle or during the injection, the needle may slip out of the vein or damage the wall, and the antitoxin will find its way into the subcutaneous tissues. If the serum is escaping into the tissues the injection should be stopped and another vein tried or the serum given subcutaneously. A sharp-pointed thin needle is thrust straight into the vein in a direction parallel with its long axis. If the needle has penetrated there will be a free flow of blood; if only a few drops come away it may be that the wall has been just punctured and the point has been inserted between the coats; the needle should then be slightly withdrawn and pushed in a little further. The operation is completed in the same way as before and a pad of sterilised gauze and collodion applied to the puncture. The advantages of this method are that: (*a*) no anæsthetic is ever required; (*b*) no wound is made; (*c*) it is more rapid; and (*d*) there are no after-effects of the operation itself. The only disadvantage is that it cannot be used in every case for the reasons given above and it requires a little more practice.

B. *Immediate effects of the intravenous injections.*—These effects vary somewhat with the serum used; two different brands of serum have been given in this hospital—serum A and serum B. Serum A was given to three out of the seven first cases in the paper already cited but it gave rise to such marked circulatory depression that serum B was exclusively used for several months. At the end of 1904 and the beginning of 1905 a second series of 12 cases were treated with a modified serum A with four deaths. In some of them the immediate disturbance was well marked so that it was again given up and during 1905 serum B was practically the only one used.[9]

1. *Effects of serum A as a whole.*—The most constant forms of disturbance were pyrexia and a rash. In all the cases there was a rise of temperature during the first three hours following the injection (in one case to 106·6° F. and in another to 105° as shown on charts A and B). This was accompanied by chilliness (in some cases by a rigor), depression, and occasionally vomiting; in one case an urticarial rash appeared a few minutes after the injection. In the others the rash appeared at the usual time but it was always very profuse and accompanied by œdema of the face and extremities. Out of the 12 cases of this series, two presented the most marked symptoms, viz.:—

CASE 64.—A girl, aged six years, was admitted on Feb. 27th, 1905, on the fourth day of the disease. The temperature was 101·8° F., the pulse was 118, and the respirations were 24. There was a thick white membrane covering the whole of the fauces, including a considerable part of the soft palate. Both sides of the neck were very much swollen. At 7 P.M. 30,000 units of serum A were given by direct puncture. At 8 P.M. the temperature had risen to 106·6° and the child had a rigor. The temperature soon came down and was 101° three hours later (see Chart A). On the 28th, 28,000 units were given and on March 1st, 20,000; both injections were given subcutaneously and both were

CHART A. CHART B. CHART C. CHART D.

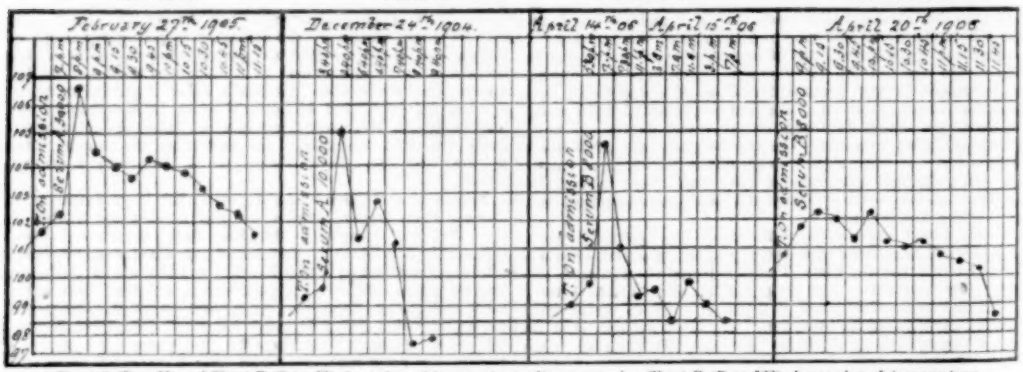


Chart A (Case 64) and Chart B (Case 29) show rise of temperature after serum A. Chart C (Case 199) shows rise of temperature after serum B. Chart D (Case 196) shows ordinary temperature curve after intravenous injection of serum B.

followed by a rise of temperature of 1½°. There was then much albumin in the urine. On the 3rd the pharynx was clean but the child began vomiting; she had almost complete anuria and died on the next day.

CASE 29.—A girl, aged four years, was admitted on Dec. 24th, 1904, on the third day of the disease. The temperature was 98·6° F., the pulse was 128, and the respirations were 26. Both tonsils were covered with membrane and also the soft palate. An injection of 10,000 units of serum A was given by direct puncture at 3.40 P.M.; at 4.40 P.M. the temperature had risen to 105° and there was some chilliness but no rigor. Four hours later the temperature was 98°. A profuse rash

[9] In England very little has so far been written about these effects of the serum; in France Professor Roger, Dr. Poix, and others have lately described fully severe toxic symptoms which may follow even subcutaneous injections of antitoxin.

with œdema came out on the seventh day. The child improved rapidly and was discharged in the sixth week (see Chart B).

The following table shows the maximum rise of temperature after the injection and the dose of antitoxin given in the other 10 cases:—

TABLE I.

	Temperature.	Units of antitoxin.		Temperature.	Units of antitoxin.
Case 70 ...	104·6° F. ...	40,000	Case 75 ...	100·4° F. ...	10,000
,, 22 ...	103·4 ...	10,000	,, 65 ...	99·8 ...	20,000
,, 19 ...	103·4 ...	20,000	,, 20 ...	99·0 ...	20,000
,, 34 ...	102·8 ...	20,000	,, 26 ...	101·2 ...	10,000
,, 23 ...	101·8 ...	10,000	,, 27 ...	No rise ...	40,000

Cases 70, 23, 75, and 20 vomited shortly after the injection. Case 70 developed an urticarial rash ten minutes after the injection. Case 27 was brought in moribund with very urgent laryngeal symptoms; tracheotomy was performed at once with complete relief but the child died four hours later without showing any rise of temperature. Case 26 was a baby, aged eight months, a very severe laryngeal case, not relieved by intubation. Tracheotomy was performed but the child died from broncho-pneumonia in the second week. Case 75 was a very severe pharyngeal case which died in the second week from cardiac paralysis. It will be noticed from the above table that the rise of temperature is not in proportion to the dose of serum given.

A third series of cases has been treated with a second modification of serum A during last January. Four cases were treated intravenously; only one had a rise of temperature to 101·8° and all recovered.

2. *Effects of serum B as a whole.*—The other 184 cases of the present series all had serum B. If we compare the effect on the temperature we shall find that the highest temperature was 104·6° F., with a rigor (see Chart C). Out of these 184, 20 only had a rise of more than 2°, whilst in the first 12 treated with serum A eight cases had a rise of 2° and the others 3° or 4° after the injection. Comparing the rashes, they have never been so severe and never accompanied by œdema; no vomiting has ever followed the injection. The following table shows the maximum rise of temperature and the dose of serum given to the 20 cases mentioned above.

TABLE II.

	Temperature.	Units of Antitoxin.		Temperature.	Units of antitoxin.
Case 199* ...	104·6° F. ...	8,000	Case 156 ...	102·4° F. ...	6,000
,, 3 ...	103·8 ...	20,000	,, 141 ...	,, ...	8,000
,, 65 ...	103·6 ...	20,000	,, 60 ...	,, ...	,,
,, 42 ...	103·2 ...	4,000	,, 132 ...	,, ...	6,000
,, 45 ...	103·4 ...	16,000	,, 184 ...	102·2 ...	8,000
,, 129† ...	102·8 ...	6,000	,, 122 ...	102·0 ...	4,000
,, 92 ...	,, ...	,,	,, 169 ...	101·2 ...	8,000
,, 82 ...	,, ...	16,000	,, 48 ...	101·0 ...	12,000
,, 94 ...	,, ...	6,000	,, 112 ...	,, ...	6,000
,, 83 ...	102·6 ...	,,	,, 96 ...	,, ...	8,000

* Rigor. † Rash 36 hours after injection.

Here again we see no relation between the rise of temperature and the dose of antitoxin given. The effects on the albuminuria were not definite; several cases (50 out of the 200) had albumin either on admission or shortly afterwards, but it is difficult to say whether the serum had anything to do with its later appearance or not.

BRIEF RECORD OF THE 200 CASES TREATED BY INTRAVENOUS INJECTIONS.

The cases may be divided into: A, pharyngeal; B, laryngeal; C, pharyngo-laryngeal; D, hæmorrhagic; and E, mixed (i.e., scarlet fever and diphtheria).

A. *Pharyngeal cases.*—Each class will be subdivided into mild, severe, and very severe, according to the extent of the membrane and the gravity of the symptoms.

1. *Mild pharyngeal cases.*—In some of these cases there was only a small patch of membrane on one tonsil, in others both were completely covered; there were no lymphadenitis and no nasal discharge; a few had a trace of albumin (ten in this group). There were 90 cases of this type and all of them recovered. Out of these 67 had the whole of the antitoxin intravenously; the others had it partly subcutaneously, partly intravenously. The total doses given varied between 2000 and 20,000 units. All the antitoxin was given by direct puncture; five cases had serum A (Nos. 22, 23, 29, 178, and 181). The three first had a rise of temperature (*vide supra*, Table I.), the two others belonged to the third series treated with this serum and did not show any reaction. The other 85 had serum B and 11 of them had a rise of temperature within three hours after the injection.

2. *Severe pharyngeal cases.*—In these the membrane covered the tonsils, the pillars of the fauces, and the uvula. There was some nasal discharge with lymphadenitis on one or both sides of the neck. Albumin was present in eight out of the 30 cases of this group. Three cases died, a mortality of 10 per cent.; death was due to paralysis, which in two cases occurred in the second week and in the other in the sixth week. The total doses of antitoxin varied between 20,000 and 70,000 units; in 13 cases it was all given intravenously (one of these died), in the others partly in that way and partly subcutaneously. One patient had serum A with a rise of temperature to 101·8°; this one belonged to the third series treated with this serum. All the others had Serum B by direct puncture except one in which it was given by incision. Five of these had a rise of temperature (Cases 48, 65, 82, 96, and 169. See Table II.) The three who died were amongst those who had Serum B by direct puncture.

3. *Very severe pharyngeal cases.*—The membrane extended over both tonsils, uvula, soft palate, and posterior wall of the pharynx. In this group are included cases of the septic type with profuse discharge from the nose and throat and great swelling of the glands of the neck with œdema. There was marked albuminuria in 17 of the 31 cases of this group, 16 of which died, a mortality of 51·64 per cent. Death was due to cardiac paralysis and occurred in the second week, in one case in the sixth week. Cases 19, 64, 70, and 75 were treated with serum A by direct puncture; Cases 64 and 75 died; in Case 64 the temperature rose to 106·6° F. with a rigor (see Chart A). The other 27 had serum B by direct puncture except two who had it by incision. In one of these (Case 3) and also in Cases 94 and 42 a rise of temperature followed the injection. The total doses of antitoxin were between 20,000 and 110,000 units; four cases had all the serum injected intravenously and two of these died; the others had it partly by that method and partly subcutaneously. Case 173 had no rise of temperature but the injection of serum B was followed by depression and a profuse urticarial rash a few minutes later.

It would be impossible to give notes on each of the 31 cases of this group but the following two illustrate very well the severity of the type.

CASE 70.—A girl, aged six years, was admitted on March 4th, 1905, on the fourth day of the disease. Thick membrane covered both tonsils, the uvula, and the soft palate. The posterior wall of the pharynx was not visible on account of swelling at the isthmus. There was no discharge from the nose on admission but the child was very pale and the glands on both sides of the neck were markedly enlarged. The temperature was 101° F., the pulse was 128, and the respirations were 28. The lungs were normal; some accentuation of the aortic second sound was present. 30,000 units of serum A were injected by direct puncture; the temperature rose to 104·6° two hours after the injection and the child vomited. On the 5th the condition of the throat was unchanged and 30,000 units of serum B were given by direct puncture. On the 6th the throat still showed little change; 20,000 units of serum B were injected. On the 8th the membrane had largely disappeared and left a blackish slough. On the 10th albuminuria appeared and was present for four weeks. On the 14th there was paralysis of the soft palate; the first heart sound was weaker and the pulse was irregular. On the 25th cardiac dilatation was present with vomiting and a small irregular pulse; the child had to be fed per rectum for over a week. On the 28th there was aphonia with signs of laryngeal obstruction due to paralysis of the laryngeal muscles; intubation was performed with complete relief. The heart remained weak until the twelfth week; at the beginning of the thirteenth week the child was allowed to sit up. From that time she improved slowly and was discharged quite well during the fourteenth week.

CASE 153.—A girl, aged five years, was admitted on Sept. 9th, 1905, on the third day of the disease. On admission there was membrane on both tonsils, the soft palate, and the uvula which practically blocked the isthmus of the fauces. Discharge from the nose was profuse and offensive and lymphadenitis with œdema was present on both sides of the neck. The temperature was 100·8° F., the pulse was 129, and the respirations were 22. The urine contained a trace of albumin. The child was very pale, drowsy, and her general appearance in keeping with septic diphtheria. 26,000 units of serum B were given intravenously by direct puncture and 12 hours later 20,000 units subcutaneously. On the 10th the membrane appeared to be thicker on the palate; 40,000 units of antitoxin were injected subcutaneously in two doses. On the 11th it still showed no sign of becoming loose and 14,000 units were given. The uvula was pushed forward by the swollen tonsils and appeared to be entirely buried in thick membrane. On the 12th 8000 units were given subcutaneously; more membrane had formed and thick pieces of it completely obliterated the space between the tonsils and the uvula. The child began vomiting and continued on and off until death. Peptonised milk was first tried, but eventually rectal feeds had to be resorted to. On the 13th the membrane began to separate from the tonsils; the temperature was 101° and the pulse was 140 and of low tension. On the 14th the pharynx was almost clear; the pulse was intermittent, very small, and the colour was livid. In the evening the child became more restless; there was constant vomiting and the urine was scanty. Death occurred on the 15th.

A mortality of 51·64 per cent. appears at first sight very high but the results obtained in this group were considered satisfactory, taking into account the severity of the type, as most of the cases can be fairly called malignant in the sense in which the term is generally used by clinicians.

B. Laryngeal cases.—There was no pharyngeal membrane in any of these 18 cases at the time of admission; they were sent in on the score of laryngeal obstruction.

1. *Mild laryngeal cases.*—The symptoms in these cases, three in number, were not urgent and were relieved by steam; in all of them recovery ensued without operation. All the antitoxin was given intravenously by direct puncture. Two had 8000 units of serum B each in one dose. The other (Case 34) was found to have albuminuria on admission; 20,000 units of serum A were injected, after which there was a rise to 102·8° (see Table I.).

2. *Severe laryngeal cases.*—Intubation was performed on admission in the ten cases of this group and all recovered. The total doses varied between 8000 and 30,000 units. In two of them it was given entirely intravenously; in the others partly in that way and partly subcutaneously. In nine cases direct puncture was employed; in one, incision; all received serum B. In three, albuminuria was present. None had a rise of temperature. The following list shows the doses of serum given and the date of extubation.

CASE 165.—A boy, aged three years, was admitted on the third day of the disease. He had 10,000 units of antitoxin by incision. He was permanently extubated on the seventh day; the tube was once removed during the seven days but had to be returned at the end of 24 hours.

CASE 198.—A boy, aged three years, was admitted on the fourth day of the disease. He had 10,000 units of antitoxin intravenously and 16,000 subcutaneously. He was permanently extubated on the eighth day. He was tried twice without the tube but was re-intubated within half an hour.

CASE 114.—A girl, aged two years, was admitted on the second day of the disease. She had 8000 units of antitoxin intravenously and 32,000 subcutaneously. She was permanently extubated on the eighth day and then put in steam for 42 hours.

CASE 91.—A girl, aged six years, was admitted on the third day of the disease. She had 20,000 units of antitoxin intravenously and was permanently extubated on the fourth day.

CASE 71.—A girl, aged six years, was admitted on the second day of the disease. She had 4000 units of antitoxin intravenously and 30,000 subcutaneously. She was permanently extubated on the third day.

CASE 107.—A boy, aged five years, was admitted on the second day of the disease. He had 22,000 units intravenously and 12,000 subcutaneously. He coughed up the tube at the end of the third day and did not need re-intubation.

CASE 90.—A boy, aged four years, was admitted on the first day of the disease. He had 8000 units intravenously. The tube was coughed up at the end of 16 hours and did not require to be returned. The child was put in steam for 48 hours.

CASE 97.—A boy, aged six years, was admitted on the fourth day of the disease. He was given 6000 units of antitoxin intravenously and 8000 subcutaneously. He was permanently extubated at the beginning of the fourth day.

CASE 110.—A girl, aged five years, was admitted on the second day of the disease. She had 8000 units intravenously and 16,000 subcutaneously. She was permanently extubated on the third day.

CASE 108.—A boy, aged six years, was admitted on the fifth day of the disease. He had 8000 units intravenously and 16,000 subcutaneously. The tube was permanently removed on the third day.

On comparing these cases it will be noticed that six of them were permanently extubated on the third day and one on the fourth, which may be considered as early, since all were admitted with urgent laryngeal symptoms and needed prompt interference.

3. *Very severe laryngeal cases.*—In these tracheotomy was either done on admission or intubation was first tried but did not relieve the condition and a secondary tracheotomy was performed. There were five cases in this group with one death, which was due to broncho-pneumonia. One had all the serum intravenously; the others partly intravenously and partly subcutaneously. In two cases the injection was given by incision, serum A being used in one and serum B in the other. None had pyrexia after the injection.

CASE 20.—A girl, aged two years, was admitted on the third day of the disease. Tracheotomy was done six hours after admission; the tube was removed on the fourth day. 20,000 units of serum A were injected by incision. The child was discharged well in the ninth week.

CASE 24.—A girl, aged two and a half years, was admitted on the first day of the disease. There was not much recession on admission but it increased after 48 hours. Tracheotomy was performed on the third day and the tube was removed in 36 hours. 20,000 units of serum B were given by direct puncture. She was discharged well in the fifteenth week.

CASE 93.—A boy, aged three years, was admitted on the third day of the disease. On admission there were laryngeal cough and recession. The child was put in steam but recession increased and intubation was performed. On the sixth day breathing was not possible without the tube, which was repeatedly coughed up soon after insertion, owing probably to the presence of an ulcer, and tracheotomy had to be done. The tube was removed in four days. 6000 units of serum B were injected by direct puncture and 8000 subcutaneously. The child was discharged well in the fifth week.

CASE 86.—A girl, aged one year, was admitted on the ninth day of the disease with marked laryngeal obstruction, recession, and cyanosis. Tracheotomy was done on admission with complete relief and the tube was removed in five days. 20,000 units of serum B were given by incision and 18,000 units subcutaneously. She was discharged well in the eighth week.

CASE 59.—A boy, aged two years, was admitted on the second day of the disease. He was brought in with extreme recession and stridulous breathing. Tracheotomy was performed on admission with complete relief. 20,000 units of serum B were given by direct puncture and 16,000 subcutaneously. The child died in the second week from broncho-pneumonia.

C. *Pharyngo-laryngeal cases.*—These were admitted with signs of laryngeal obstruction and membrane on the pharynx.

1. *Mild pharyngo-laryngeal cases.*—Cases 33, 66, 88, and 194 belonged to this group. Case 66 had serum A with a slight rise of temperature (see Table I.). The other three had serum B with no rise. Cases 66, 33, and 194 had all the serum intravenously; Case 88 had one dose intravenously and one subcutaneously. All recovered, none requiring operation.

2. *Severe pharyngo-laryngeal cases.*—These had, apart from a marked angina with membrane, urgent dyspnœa necessitating intubation on admission. There were eight in this group with two deaths; five had albuminuria. All had serum B by direct puncture; in two of them it was all given intravenously. The following list gives the total doses of serum given and the date of permanent extubation.

CASE 103.—A girl, aged four years, was admitted on the second day of the disease. Membrane was present on the tonsils; there were also recession and dyspnœa. She was intubated on admission and the tube was permanently removed on the fourth day. 16,000 units of antitoxin were injected intravenously and 8000 subcutaneously. The child was discharged in the fifth week.

CASE 99.—A girl, aged seven years, was admitted on the fifth day of the disease with scarlet fever. During convalescence membrane developed on the tonsils; laryngeal stenosis ensued and the child was intubated. She was permanently extubated on the tenth day. She had 10,000 units of antitoxin intravenously and 18,000 subcutaneously.

CASE 98.—A boy, aged five years, was admitted on the third day of the disease with some membrane on the pharynx and laryngeal symptoms. He was intubated 18 hours after admission; the tube was coughed up two and a half hours later and re-intubation was not necessary. He was put in steam for a few hours. 16,000 units of antitoxin were given intravenously.

CASE 163.—A boy, aged five years, was admitted on the fifth day of the disease with membrane on both tonsils, recession, and dyspnœa. He was intubated at once; the tube was coughed up four hours later and did not require to be replaced as steam relieved the condition. He was given 6000 units of antitoxin intravenously and 8000 subcutaneously.

CASE 179.—A boy, aged three years, was admitted on the second day of the disease with membrane on the tonsils and laryngeal distress. He was intubated on admission; the tube was permanently removed on the fourth day. He received 8000 units of antitoxin intravenously.

CASE 193.—A girl, aged four years, was admitted on the sixth day of the disease with pharyngeal membrane and severe laryngeal symptoms. She was intubated at once and extubated on the eighth day. She had 16,000 units of antitoxin intravenously.

CASE 152.—A girl, aged nine months, was admitted on the sixth day of the disease with membrane on both tonsils and recession. Intubation was done on admission and she died on the fourth day from heart failure. She received 17,000 units intravenously and 19,000 subcutaneously.

CASE 147.—A boy, aged two years, was admitted on the fourth day of the disease with membrane on the pharynx, laryngeal symptoms, and Koplik's spots. He was intubated on admission. Measles rash came out on the second day and he was extubated on the third day. He was given 12,000 units intravenously and 30,000 subcutaneously and died from broncho-pneumonia in the second week.

3. *Very severe pharyngo-laryngeal cases.*—In these tracheotomy was performed on admission or secondary to intubation. There were three patients in the group with two deaths. All three (Cases 180, 26, and 27) had serum A; in Case 27 it was given by incision.

CASE 26.—A boy, aged eight months, was admitted on what was stated to be the first day of the disease with membrane on the tonsils and soft palate. Intubation was performed soon after admission. Temporary relief followed but the laryngeal symptoms reappeared in a few hours. Tracheotomy was performed, but the child died from broncho-pneumonia in the second week. He received 20,000 units of antitoxin intravenously.

CASE 27.—A boy, aged two years, was admitted on the sixth day of the disease with membrane on both tonsils, soft palate, and pharynx in the last stage of asphyxia. Tracheotomy was done at once and a large piece of membrane was coughed up through the wound. Complete respiratory relief followed but the child died from heart failure nine hours later. He had 40,000 units of serum A intravenously by incision.

CASE 180.—A girl, aged eight years, was admitted on the fourth day of the disease with some membrane on the tonsils and urgent laryngeal symptoms. Intubation was first tried but it did not relieve the condition and tracheotomy was performed with complete relief. The tube was removed on the fourth day. 10,000 units of antitoxin serum A were given by direct puncture.

D. *Hæmorrhagic cases of a grave type.*—Most of these were brought in late in the attack and they all very soon

developed subcutaneous ecchymoses and hæmorrhages from the mucous membranes—practically a fatal sign in diphtheria. There were seven patients in the group and all died. Two cases had all the serum intravenously; very large doses were given, up to 110,000 in one case. Death occurred within the first ten days from the onset. Four patients had albuminuria; in two cases no specimen could be saved. In all of them serum B was used, two having it by incision. It will be sufficient to give notes of one case in this group.

CASE 106.—A girl, aged four years, was admitted on May 17th, 1905, on what was said to be the third day of the disease. Both tonsils were covered with thick membrane extending to the uvula and the soft palate. The cervical glands were much enlarged, especially on the right side. The pulse was 120 and feeble, and the temperature was 101·2° F. The urine contained a trace of albumin; the heart sounds were clear but weak. The child was pale, with some lividity about the mouth and nose. An injection of 18,000 units of antitoxin was given subcutaneously and 6000 intravenously. On the 18th 4000 units were given intravenously and 2000 subcutaneously; the membrane had extended on the soft palate and appeared thicker; on the evening of the same day 18,000 units were injected subcutaneously. On the 19th hæmorrhagic spots became evident on the trunk and limbs; some of them soon enlarged and looked like bruises. There was bleeding from the nose and the lips were ulcerated and oozed continuously. The child began vomiting and continued until death which occurred on the 27th.

E. *Mixed cases.*—These were admitted with scarlet fever and diphtheria. There were nine patients in this group, with two deaths; one of the recovery cases had croup and was tracheotomised. The two deaths were due to bronchopneumonia and cardiac paralysis. Serum B was alone used; it was all given intravenously in four cases, one of which had it by incision.

Results.—From October, 1904, to April, 1906, altogether 660 cases of diphtheria were treated in the Plaistow Hospital, with 92 deaths. Comparing this death rate with that of the cases treated by the intravenous method it will be seen that it is 13·94 per cent. in the former and 16·5 per cent. in the latter. This is partly due to the fact that all the "very severe cases" were chosen for the intravenous treatment. Out of the 200 cases there were nine tracheotomies, with three deaths—a mortality of 33 per cent.—and there were 18 intubations, with two deaths—a mortality of 10·10 per cent.

NOTES ON PURIN-FREE DIETS.

BY W. A. POTTS, B.A. CANTAB., M.D. EDIN. & BIRM., M.R.C.S. ENG.,

LECTURER ON PHARMACOLOGY AT THE UNIVERSITY OF BIRMINGHAM.

JUST over a year ago I published a paper entitled "The Advantages of a Purin-Free Diet."[1] The numerous inquiries I have since had from medical men all over the kingdom, many of whom have themselves consulted me as patients, show how widespread is the interest in the subject and how little even now it is understood. It may therefore be useful to give here more precise details and to attempt to meet some of the more common difficulties. In the earlier paper I explained the importance of constant supervision for all cases under treatment on these lines; the pitfalls are numerous, and those who set out to reform themselves or others without any study of the subject run considerable risk. Many therefore, who make a half-hearted trial, give it up in disgust. On the other hand, patients who have given the system a thorough test, for not less than six months, are so convinced of its value as to express a determination not to return to their former mode of life.

The purin bodies include all those constructed on the base C_5N_4. Some 12 different combinations of this kind are known to exist in nature, while a large number have been produced in the laboratory. Those of ordinary occurrence are uric acid, caffein, theobromin, xanthein, hypoxanthin, guanin, and adenin. These are found in meat and meat extracts, and especially in glandular organs, such as the pancreas and liver; they occur in smaller amount in many vegetables and in certain other articles of diet.

The mere fact that a diet is purin-free is of little value unless attention is paid to the other factors essential for healthy digestion. Thus the amount of food should be small, the meals few, and mastication efficient. At the same time, the food should be plain. The tendency in some quarters to adopt a fruitarian diet and then spoil it by rich sauces and elaborate cooking, to say nothing of spices, pickles, vinegar, and condiments, is only likely to breed disappointment and disgust. The man or woman who forswears meat and lives on highly flavoured dishes, with cream and other rich accessories would do much better on a plain mutton chop or a fish dinner. If, however, simplicity is made the first essential, then much further benefit can be obtained by discarding all those articles of food and drink which contain uric acid and allied bodies in excess. The fact that nearly all foods contain minute traces would seem to indicate that eliminating them altogether is a counsel of perfection we were not intended to contemplate. What we want to aim at is a reasonable minimum; for this purpose the purin percentage table will be useful. The condition of "hyper-pyræmia," due to an excess of carbohydrates, recently described as the underlying element in many disorders, is not developed on a properly-arranged fruitarian diet; all excesses are bad and too much starchy food in conjunction with meat is especially injurious.

In my first paper I referred to the value of this mode of treatment in chronic disease. It is unnecessary to quote further instances of successful treatment or do more than state that some of the patients before referred to and many of those since treated on similar lines were suffering not merely from functional illness but from organic disease such as cardiac and renal trouble. Believing, as I do, that functional disturbance is but a warning, too often neglected, of the ultimate onset of organic disease, it is only reasonable that the same treatment should be efficacious in both. Excellent as are the results obtained in chronic mischief they bear no comparison with those that may be effected in acute illness. The progress of events is often startling to those who have had no previous experience of this system; the course run is benign, out of all proportion to the mode of onset, supposing an ordinary diet to have been the previous habit. For instance, in pneumonia the temperature often quickly falls by lysis and all the difficulties and dangers of a crisis are avoided. I need hardly say that such excellent results can only be obtained by bold and consistent action. Any attempt to graft the new method on the old is likely to be fraught with disaster; this explains why so many practitioners condemn the innovation and say that fruit must be avoided in illness. Given with beef-tea and stimulants it does more harm than good, but if the beef-tea and stimulants are *entirely* discarded, the medicines reduced to a minimum, and all nourishment taken in the form of milk or fruit juice, results are obtained which can never be got by more orthodox treatment. The diet suitable for acute disease is simplicity itself. In the first place we have milk, which may be diluted with soda water and given cold or warm; it should never be boiled, as in the process the antiscorbutic properties are destroyed and much of the albumin coagulated. An excellent plan is to give two ounces of milk regularly every two hours from the start. Administered in this way milk can often be taken all through an acute illness. Should the taste pall, varying flavours may be imparted by such methods as heating the milk in the oven instead of a saucepan, or cooking slowly with rice and subsequent straining. The feeds of milk may alternate with, or be replaced by, fresh fruit juice, of which that from grapes or oranges is the best. In some cases the whole grape may be eaten, or a banana, care being taken to scrape off the indigestible external fibres left after peeling; changes may be rung on pineapple juice, cooked apples, &c. To the large majority of patients such foods are exceptionally grateful. In cases where generous nourishment is required the most valuable form is white of egg, which may be given beaten up with milk or water and sugar. Many invalids find nothing more refreshing and sustaining than egg lemonade, made by shaking up the juice of half a lemon and the white of an egg in a large bottle with half a pint of cold water, and adding sugar as required. In addition, we have Benger's and similar milk foods, to say nothing of jelly, Grape Nuts, Force, and other proprietary articles of value.

Treatment on these lines is not only successful in the first instance but also obviates those after consequences, such as acute rheumatism, so frequently seen when stimulants and meat extracts are freely administered. If only our large hospitals, instead of constantly appealing for increased subscriptions and pandering to the popular taste, would devote their energies more to working out the best dietaries on these lines, and to instructing the public how to live healthily,

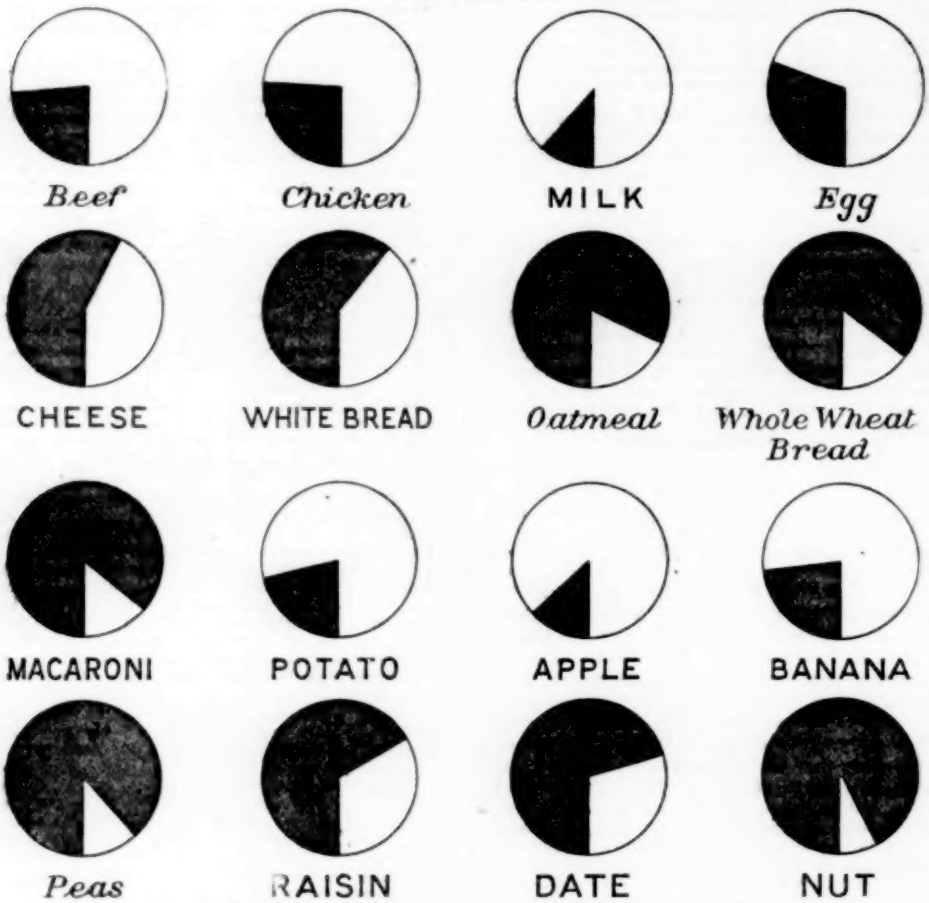
[1] THE LANCET, June 17th, 1905, p. 1636.

their balance-sheets would be more satisfactory and their needs for extension disappear. I must confess a complete want of sympathy with the common ideal of devoting all one's efforts and care to the present suffering, regardless of the cause. Surely it is wiser, more humane, more patriotic to focus attention on the *fons et origo mali* and to give kindly advice as to a healthier mode of life. Patients of all classes are usually deeply grateful for such instruction. The fact that it is an impossible task for the physician who deals with large groups of out-patients at once condemns the practice in vogue at our most important hospitals; the present system but fosters the delusion that all one can expect and all one will get from a medical man are a few kind words and a bottle of medicine.

Of course, some of these foods, such as oatmeal and macaroni, require such alteration before coming to table as greatly to diminish the proportion of nourishment. A glance, however, at the figures for bread, dates, and nuts at once brings home the possibilities of the new system. As a matter of fact, less food is required when fruit is the basis, because such a diet is better digested and absorbed.

There are many individuals who say they believe that there is something in the new system but that at the present time we do not know enough to justify us in adopting it. I submit that the facts we already possess are fairly convincing to those who follow them out to a logical conclusion. At the present moment more than one-half the population of

NUTRITIVE VALUES.



The dark portion represents the nutritive value. Those printed in capitals are purin-free.

For chronic illness and ordinary life the simple diet recommended for acute disease requires considerable extension on similar lines. Before giving precise details some general considerations may not be out of place. It is necessary first to meet the objection that on the new system it is difficult, if not impossible, to take enough nourishment for robust health and active work. This implies ignorance of the researches of Chittenden and others into the amount of food necessary, and of food values. Chittenden has proved that the majority of people enjoy better health and can do more work after reducing the amount of their food by a third or a half. Just as meat possesses less nutritive value than is popularly supposed, so many articles in a fruitarian dietary contain infinitely more. The diagrams appended illustrate this in the simplest way.

the world, including those living in all kinds of climates, and including the races with the finest physique, do not eat meat. Those men who are afraid of sacrificing their manhood by a departure from the beef and beer system may take comfort in the fact that the Romans at the time they conquered the world were vegetarians, as were also the majority of the Japanese at the period of their grandest achievements. Japan has a climate similar to our own except for greater extremes both of heat and cold. In these circumstances it is matter for little surprise that men in our own country who have adopted the new system find they enjoy infinitely better health and can accomplish much more, alike in their ordinary work and in trials of strength and endurance. With those critics who deem these considerations no argument, but stake all

on the cold-blooded science of the pathological laboratory, the results obtained by Chalmers Watson in his investigations into the effect of a meat diet on rats, may carry more weight. It is only in accord with clinical evidence to be told that rats so fed exhibit marked predisposition to disease and early decay, and that even if the health is not seriously affected for the worse such degenerative changes as a harshness of the skin are in evidence; it is not surprising to hear of a tendency to sterility and diminished powers of lactation. With these facts in our minds it seems somewhat anomalous that many medical men should still be impressing on their patients the necessity for a little meat, at any rate once a day. As a matter of fact, the evidence, so far from being insufficient, is overwhelming in the direction of proving that a much more satisfactory state of being results from the new system. There are, however, many fallacies, and these must be studiously avoided if advantage is to be gained. Tea and coffee are a serious stumbling block with many. The necessity for eating slowly has already been emphasised, as also the desirability of the meals being few. Two meals a day is the ideal arrangement, while those who take more than three have only themselves to blame if their health is not all they desire. For the benefit of those who wish to make a gradual change and also of those, who without adopting the system in its entirety, yet wish to derive some benefit from a knowledge of the purin bodies, the following table based on Dr. Walker Hall's work will be useful:—

Purin Percentage Table.

Meat.

	Purins as grains per lb.		Purins as grains per lb.
Sweetbread	70·43	Loin of pork	8·48
Liver	19·26	Veal	8·13
Beef-steak	14·45	Ham	8·08
Sirloin of beef	9·13	Mutton	6·75
Chicken	9·06		

Fish.

Salmon	8·15	Plaice	5·56
Halibut	7·14	Cod	4·07

Other Foods.

Beans	4·16	Asparagus	1·50
Lentils	4·16	Onions	0·06
Oatmeal	3·45		

Beverages.

	Grains per pint.		Grains per teacup.
Porter	1·35	Coffee	1·70
Ale	1·27	Ceylon tea	1·21
Lager beer	1·09	Indian tea	1·05
		China tea	0·75

The obvious deduction from a study of these is that those who do not want to rank as extremists will do well to eschew the glandular organs, such as sweetbreads and liver, to pin their faith to mutton and one or two kinds of fish, to give up coffee, and drink weak China tea. Those who wish to go further should reflect first that man is neither carnivorous nor herbivorous. For long scientists have obscured the view by useless arguments as to whether or not a man was meant to live like a cow. There are other species than the flesh- and grass-eating animals; all students of comparative anatomy know now that the teeth of human beings are identical with those of the frugivorous apes who live on fruits and nuts. Not only so, but the proportion of bowel length to body length in man corresponds exactly with that in the same species, in marked contrast to what obtains in all carnivorous animals where the bowel is proportionally short. The extraordinary proneness of animal food to decay indicates the wisdom of a short alimentary tube, with correspondingly rapid excretion, for species who so subsist, and justifies the theory that excessive meat-eating at the present day may largely account for the prevalence of constipation, appendicitis, and other abdominal troubles.

A study of anatomy therefore suggests a fruit diet as the most suitable; further confirmation is afforded by the obvious predilection of nearly all children for such food. The best fruits for food are apples, bananas, grapes, nuts, dates, raisins, and figs. Nuts are especially valuable owing to the large amount of fat they contain; the old-fashioned idea that they are indigestible is due partly to the error in taking them at the end of an already more than ample meat meal and partly to insufficient mastication. Chestnuts are the easiest to digest and make an excellent food. Many other fruits may be taken, always remembering that stone fruits sometimes disagree and that acid fruits should be taken in moderation. Strawberries contain a considerable amount of purins and should be avoided by all with a gouty or rheumatic tendency. Among fruits we include those of the cereals, such as wheat and rice. White bread is free from purin but brown contains a varying amount derived from the husk. The most wholesome form of bread is unleavened; till recently this could not be bought, but is now supplied by the Wallace Bakery in London and by Winter in Birmingham among others.

From fruits we pass to vegetables, which are less useful articles of diet. The old-fashioned idea that vegetarianism means living on cabbage and potatoes is gradually being exploded. Many vegetables contain but little nourishment and others, such as peas, beans, spinach, asparagus, and onions, contain noticeable amounts of uric acid. It must be understood, however, that the purins derived from the vegetable kingdom act less injuriously than those from an animal source; the latter are always combined with ptomaines, for recent experiments have proved that meat, even when freshly killed and immediately placed upon ice, always contains such products of decomposition. This explains the great benefit experienced by those who give up meat altogether. If people only realised that beef-tea and meat extracts are little else but decoctions of decomposed blood and waste products of animal life they would evince less avidity in disposing of them. Vegetables are most valuable to those who take much meat as they supply alkaline salts to antagonise the excess of acid. Still they are far from useless in any case. Potatoes are among the best in ordinary circumstances, though not absolutely free from purins. As a general rule it may be said that the best fruits and vegetables are those which grow in a state of nature, those indigenous to our own country being the most suitable for us. The more cultivation and manure required the less desirable does a fruit become. A mistake often made with vegetables, and especially with salads, is to douse them with vinegar, a prolific cause of dyspepsia. Vinegar should never be taken by those who aim at robust health. As an alternative an excellent salad dressing is made by a little pure olive oil with a squeeze of lemon juice.

For those who are not satisfied with fruit, another article of diet free from purins is cheese. Its nutritive value is high, as well as its stimulating properties, so that it forms a useful stepping stone for those who would pass by easy stages from a meat to a fruitarian diet. Care must always be taken not to indulge to excess in such a concentrated food. The value of milk and uncooked white of egg has already been dwelt on; yelk of egg is probably not free from purin and is not easy of digestion. Cream is purin-free but too rich for frequent use. Food is always best in its natural state and not in a concentrated form; there is, however, no objection to butter in moderation. Honey contains a considerable amount of nourishment; it has the unique distinction among food-stuffs of subserving, as far as we know, no other purpose. Oatmeal and lentils contain more than a trace of purin, and must therefore be taken in moderation; it would be a pity, however, altogether to exclude two such inexpensive, palatable, and sustaining articles of diet. A word of caution is necessary with regard to mushrooms: these are not only charged with the offending ingredients but are in addition difficult to digest.

So far from the new diet lacking variety, a glance at the menu of an up-to-date fruitarian restaurant or the price-lists of the so called food specialists indicates endless possibilities. A study of the subject of food values and the harmful effects of ptomaines will best explain the splendid appearance and physique of those brought up on this system in marked contrast to the anæmia and malnutrition so common among meat-eaters.

It only remains to say that if nourishing foods are made use of there is often no objection to a fairly rapid change; usually, however, and always with elderly people, graduated stages are better; these may be arranged either by altering one meal at a time or by eliminating the injurious items in instalments. Testing with the purinometer, I have found that with many patients who will not submit to the full *régime*, the exclusion of tea effects more than abstention from meat. Further experience has but served to confirm the value of this instrument both in estimating the necessity for change and in calculating the rate of progress. It would be wise to introduce some such test into an examination for life insurance, and to accord those who come out well

advantages similar to those often accorded abstainers from alcohol. Occasional catastrophes not indicated by the usual tests might then be foreseen; healthy people with healthy habits do not die suddenly from exposure to cold or a little extra pressure of business.

Birmingham.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ANOTHER PRESUMED CASE OF ACUTE YELLOW ATROPHY OF THE LIVER.

BY JAMES J. ANNING, L.S.A.,

ANÆSTHETIST TO THE HOSPITAL FOR WOMEN AND CHILDREN, LEEDS.

IN view of the rarity of this disease I report the following case which has recently been under my care.

The patient, a primipara, aged 23 years, was delivered by me on the evening of August 5th this year of a full-term hydrocephalic female child. The health during pregnancy up to labour had been quite normal. There was no albuminuria. Labour being difficult and prolonged, instrumental assistance was used and the patient was kept under moderately deep chloroform anæsthesia for the space of about two hours. The perineum was partially ruptured and was repaired forthwith with silkworm-gut sutures. At the termination of delivery the pulse was noted to be feeble and rapid. The uterus contracted well and there was no undue hæmorrhage. On the following morning I found the patient to be suffering from persistent vomiting, typically "coffee-ground" in character. The pulse-rate was 108 and the temperature was 98·6° F. There was no abdominal pain or distension. The uterus was well contracted and the lochia were normal. During the day very little food or water was retained. By the evening the pulse-rate had risen to 120 with a normal temperature. A boric vaginal douche was given. On August 7th the vomiting still continued. Sanatogen in a small quantity of water was given at frequent intervals and at times was retained. During the day there was slight pyrexia, the temperature being 99° in the morning and 99·2° in the evening. The pulse-rate was still rapid, getting up to 130 by night. The lochia remained sweet and the perineal tear appeared to be healthy. A boric vaginal douche was given once. No sleep having been obtained since the delivery a third of a grain of morphine with atropine was injected hypodermically at 10 P.M. On the 8th the condition of affairs remained much as on the previous day. The body temperature registered 99·6° at mid-day but by the evening it had fallen to normal. The bowels, which had not acted since the confinement, were slightly moved after a simple enema. The pulse-rate was about 140 all the day. On the 9th the patient when seen at 10 A.M. appeared to be markedly jaundiced; she was restless and semi-conscious. The vomiting, which still continued, was not quite so frequent though it remained "coffee ground" in character. On being informed by the nurse that much difficulty had been experienced during the night in keeping the patient's hands away from the vagina an examination of the perineum was made, showing that two or three of the sutures had been forcibly torn through the tissues. The remaining stitches were removed and the parts were cleansed with a boric douche. The liver dulness on percussion appeared to be normal. A catheter specimen of the urine was obtained and on examination it was found to be albuminous and to contain leucin and tyrosin; there was no sugar present; it was deeply bile-stained. Constipation being still persistent one grain of subchloride of mercury was ordered to be given every four hours during the following day. The pulse-rate remained at from 120 to 140, whilst the temperature on this date was normal. On the 10th the semi-conscious condition noted on the previous day had given place to marked delirium. The bowels had acted well and vomiting had been much less frequent. During the day Dr. W. H. Maxwell Telling kindly saw the patient with me and confirmed my view of the case probably being an example of acute yellow atrophy. He also examined some of the urine of this date under the microscope and found leucin and tyrosin present. The liver dulness was found to extend in the mammary line from the sixth interspace to about half an inch above the costal margin. The pulse-rate remained high. Owing to the delirium very little food was taken during the day; rectal saline injections were given a trial but were not retained. Urine was voided unconsciously in the bed. On the 11th the general condition of the patient appeared to be much better; there was a cessation of the delirium and of the vomiting. Food—e.g., plasmon and sanatogen—was taken well, also plenty of water. The bowels acted freely. The temperature rose to 100°, probably due to a sapræmia from the perineal wound which was not looking very healthy. The liver dulness extended from the sixth interspace to fully one and a half inches above the costal margin. On the 12th the patient had almost regained her usual mental faculties though the liver dulness was still further diminished—not extending beyond two inches above the costal margin in the mammary line. The jaundice was less apparent though the urine was still markedly bilious. During the day an erythema, very similar to morbilli, was observed spreading from the buttocks over the trunk, the face, and the limbs. Whether this was due to the sapræmia, which judging by the pyrexia (101°) and the clean healthy appearance of the parts was not very marked, or to the liver atrophy I am unable to determine. On the 14th the erythema, which on the 13th was universal, was fading. Only about one and a half inches of deep liver dulness was to be detected. The pulse-rate was 100 and the temperature was 99·6°. Examination of the urine on this date showed leucin and tyrosin to be still present, as well as albumin, but no sugar. From August 15th the liver dulness rapidly increased so that by the 20th it was almost normal and the general recovery of the patient was in every way satisfactory, constipation, which was very obstinate, only being complained of. The jaundice passed off slowly and even a month later the conjunctivæ were distinctly icteric. At no time during the illness could the spleen be felt.

Rolleston, in "Diseases of the Liver," states that "chloroform narcosis has in most exceptional instances been followed by acute yellow atrophy." Was this case an example?

Leeds.

A CASE OF FRACTURE OF THE STERNUM.

BY J. FINLAY ALEXANDER, M.A., M.D. CANTAB.

A FARM labourer, aged 60 years, fell off a cartload of sheaves on to the ground. The height from which he fell was probably about eight feet. He struck his head and was "stunned" for a few minutes; when he recovered consciousness he drove in the cart to the farm, stabled the horse, and then walked home a distance of one and a quarter miles. On arriving there he at once went to bed and remained lying down for three days because his chest "felt stiff when he moved." On the evening of the third day he got up, dressed himself, and walked about half a mile to see me. He complained of some "stiffness of the chest" and assured me that there was no swelling and "nothing to be seen." However, on making him take off his shirt there was to be seen an enormous bruise which covered nearly the whole of the front of the thorax and a ridge crossing the chest transversely at the level of the second intercostal space. There had obviously been a transverse fracture of the sternum just above the level of the attachment of the third pair of costal cartilages, and the ridge was caused by the slipping upwards and forwards of the lower fragment of the sternum, with the attached third pair of ribs, on to the upper fragment. The third rib on the right side was also fractured close to its junction with the costal cartilage. On making the patient lie down on a flat couch, without a pillow under his head, the displacement was easily reduced but returned at once when he got up. He was sent home and told to lie on a hard mattress flat on his back, and while in this position, with the displacement reduced, I firmly strapped the chest. This at once relieved all pain and within three weeks the fracture had united firmly in a good position without the formation of much callus.

The case is interesting, for, apart from the actual injury, there were no symptoms; there was never any cough or hæmoptysis, and when the man first came to see me he could walk quickly without any shortness of breath. Also, the fracture is very rare. Except when it accompanies acute

bending of the spinal column—as, for instance, in a fall from a height—or occurs with severe crushing of the whole thorax—as when the patient is run over—it is, according to Holmes's "System of Surgery," most frequently caused by a fall on to the top of the head driving the chin forcibly against the sternum; and I believe that this did happen in the case under consideration, for according to the patient's own account he, as it were, dived from the cart on to the ground; and examination showed a bruise and cut on the back of the head just above the occiput. The junction between the first and second portions of the sternum is generally at the level of the second costal cartilage, so that this cartilage articulates with both the gladiolus and manubrium. But in the case just described the separation was at the level of the second interspace, so that the second pair of costal cartilages were completely attached to the top fragment and the third pair to the lower fragment. Obviously the separation did not occur at the line of union of the first and second pieces of the sternum unless this was unusually low. Professor von Reidinger and Dr. H. Kümmell, in von Bergmann's "System of Surgery," state that even when there is a synchondrosis the separation does not occur through the line of union, but the whole synchondrosis remains attached either to the manubrium or to the gladiolus, so that the injury is a true fracture and not a dislocation. This case supports their view.

Lastingham, Yorks.

Reviews and Notices of Books.

The Medical Diseases of Infancy and Childhood. (Lippincott's New Medical Series.) By ALFRED CLEVELAND COTTON, A.M., M.D. London and Philadelphia: J. B. Lippincott Company. 1906. Pp. 670. Price 15*s*.

IN his work on the diseases of childhood and infancy Dr. Cotton has preserved a very happy equilibrium between the claims of nursery hygiene with its corollary the prophylaxis of disease and those of the treatment and description of morbid symptoms. There can be little doubt that the future of pædiatric practice lies rather in the direction of prevention than in that of cure and if Dr. Cotton has not exactly anticipated the inevitable trend in this direction to the exclusion of some of the older branches of medicine he shows himself at least well abreast of modern developments which are rapidly conducing to this end.

The first six chapters will be found to contain a very full account of the anatomy, physiology, and hygiene of the developing child—subjects which form a substantial basis for the proper understanding of preventive treatment. The completeness and accuracy of these chapters are indisputable and no fault can suggest itself to the most hypercritical reader unless, possibly, it be that the latter may be left with a sort of uncomfortable after-taste that the author regards the development of organs, both in their anatomical and functional relationships, from a somewhat teleological standpoint; that is to say, if we read these chapters aright, he leaves us rather to conclude that organs grow and develop according to some pre-determined design rather than that their efficiency and evolution depend on adaptation to the conditions of the environment—in other words, to the sort of use or education to which they are exposed during infancy and the early days of childhood. This fault, if fault it be, is particularly noticeable in the author's description of the growth of the stomach, the intestines, the heart, and the lungs, organs which are peculiarly dependent for their functional and morphological exfoliation on the sort of work which they are called upon to perform. These organs do not develop, even in relatively normal individuals, in obedience to teleological design or to text-book scales or tables, although doubtless their ultimate potentialities for work and their limits of efficiency do depend on factors which are independent of the environment.

The next few chapters, six in number to be precise, are devoted to the subject of infant feeding and these chapters give a very full account, and at the same time a very level-headed account, of the most recent development in the so-called American or percentage methods of feeding. Speaking of the recent and rapid advance in our knowledge and understanding of the art of infant feeding, the author maintains that from no quarter of the world has there been drawn more valuable practical knowledge than from that brilliant coterie of Americans, which includes the names of Leeds, Chittenden, Babcock, Harrington, Leffmann and Beam, Jacobi, Rotch, Holt, Starr, Meigs, Chapin, Van Slyke, Russell, Hart, Richmond, and the Adriences. The work of these men is most ably summarised and, indeed, on occasion criticised in these six chapters, and after weighing the advantages and disadvantages of the respective methods which are advocated by these authors the writer concludes that whatever method is adopted there is one essential that must never be lost sight of, and this is that to secure approximate accuracy—itself a most important factor—a predetermination of the gross constituents of the milk itself must be secured. For the home modification of milk, the method which is most generally applicable, the author insists that the mother or the nurse must be instructed in regard to all details and supplied with the necessary utensils; the latter include a good ice-box, two syphons, a steriliser or pasteuriser, a thermometer, a dozen graduated feeding-tubes, bottle brushes, absorbent cotton, straining gauze, non-absorbent cotton for stoppers, a mixing pitcher, an eight-ounce graduated glass funnel, a tall cup for warming the bottle, six black rubber nipples, bicarbonate of sodium, and boric acid—a list of desiderata which would probably inspire considerable awe in the minds of the majority of English mothers, but which, none the less, are absolutely essential for the proper carrying out of the best method of artificial feeding. In contradistinction to many American authors on infant feeding Dr. Cotton admits the merits of dextrinised gruels as adjuncts to an otherwise exclusive diet of modified milk.

Considerable attention is given in these pages to the evolution of gastric digestion in the developing infant. Our knowledge on this subject, as is explained on page 74, has been very considerably extended by the studies of Van Slyke and Hart on the production of cottage and Cheddar cheeses and on the chemical behaviour of caseins in the presence of acids, rennet, and pepsin. The author borrows very largely from an article by Dr. T. S. Southworth which appeared in the *Medical Record* of March 4th, 1905, to show how a knowledge of the chemical processes, which can be repeated in the test-tube, may explain the gradual development of gastric digestion in the infant. "It is," to quote the article referred to, "one of the most remarkable things in nature that milk, which itself maintains practically the same composition throughout lactation, is changed by the action upon it of the developing gastric secretion into forms and compounds which require at first moderate and later more extended gastric digestion, by which means the stomach is progressively called upon to perform more and more work until it is sufficiently developed to begin its subsistence upon the types of food consumed by the adult of its species." This principle, which is so interestingly displayed by the natural process of feeding, is the type to which Dr. Cotton very closely adheres in the artificial methods of feeding which he recommends. Indeed, as he maintains, it is by the study of the digestive processes at different periods of development that the problem of physiological feeding must be solved, and it is clearly to Dr. H. D. Chapin, the pioneer of this principle in feeding, that the author owes many of his most valuable suggestions. The later chapters of this work, which are concerned chiefly with

a description of morbid conditions, appear to us to be extremely accurate and well up to date.

An Essay on the General Principles of the Treatment of Spinal Curvatures. By H. R. HEATHER BIGG, F.R.C.S. Edin. Illustrated by the author's photographs and sketches. London: J. & A. Churchill. 1905. Pp. 240. Price 5*s.* net.

IT is a somewhat difficult task to give a satisfactory notice of this book. It is almost equally easy to undervalue and to overvalue it. On the one hand we must not fail to recognise, and to record our recognition of, the care and fulness with which the author has treated his subject; he has put forward clearly the arguments in favour of what may be called, without any wish to belittle it, the "mechanical" treatment of curvatures of the spine, and this has been done as well as possibly it could have been done by anyone. On the other hand it appears to us that he has failed to appreciate several factors in the etiology of spinal curvature which should exert a great influence on the treatment. We may say in the first place that throughout the work it has not been kept in view sufficiently that spinal caries and true spinal curvature have absolutely nothing to do with one another. (The author has, indeed, published a separate treatise on "Caries of the Spine," and therefore it was unnecessary to introduce the subject at all here.) In the second place the author has nowhere fully considered the etiology of curvature of the spine. It may be said that the book is concerned with the treatment, but the best treatment must take into account the causation of the deformity. The chief factor in the production of primary curvature of the spine is weakness of the muscles and ligaments the function of which is to support the spinal column. Therefore the most reasonable plan of treatment must take into account this weakness and must see that the weakened structures are strengthened. The chief agent in this, apart from the observance of ordinary hygienic rules of food and sleep, must be judicious exercise, and therefore the use of gymnastic exercises in the treatment of spinal curvature cannot be ignored if the best results are to be obtained. We would not have it thought that we do not value what the author calls "active appliances"; they have a very definite value, but the recognition of their usefulness should not render us blind to the importance of hygienic methods. As we have already said, Mr. Heather Bigg states well the advantages of the treatment by "appliances," and the book will be of value as containing the best exposition of this method of treatment. It is a pity that there is no index; the value of a book is always distinctly impaired by the absence of an alphabetical reference to the contents.

International Clinics. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia. Published quarterly. Vol. IV., Fifteenth Series, and Vol. I., Sixteenth Series. London and Philadelphia: J. B. Lippincott Company. 1906. Pp. 309 and 312 respectively. Sold in complete sets of four volumes: price £1 15*s.* net.

THESE two volumes of this well-known quarterly fully maintain the high standard set by their predecessors. The first of them has for its opening chapters five papers dealing with questions of treatment, but the subjects selected have little in common, since they embrace the treatment of psoriasis, the use of saline solution, the treatment of some common gastric disorders, the internal use of carbolic acid, and the value of psycho-therapy in certain nervous disorders. Then follows a section on Medicine, with six lectures dealing with empyema, "post-tussive suction," abdominal palpation, cirrhosis of the liver, affections of the thyroid gland, and Malta fever. The last-mentioned paper is by Dr. Charles F. Craig, an assistant surgeon in the United States army, who appears to have had exceptional opportunities of studying this disease. After giving brief notes of ten cases he furnishes an analysis of symptoms and concludes that the blood count is of the greatest service in differentiating this disease from typhoid fever on account of the constant occurrence of a leucocytosis in Malta fever, a symptom which is absent in typhoid fever unless a suppurative complication has occurred. He suggests the probability of a wide distribution of Malta fever even in temperate climates, and maintains that there are no pathognomonic symptoms of Malta fever, that all the symptoms presented may occur in many other infections, and that the cases are very few in which a diagnosis can be made without the aid of the serum reaction. The surgical section and that devoted to obstetrics and gynæcology include several lectures of considerable interest, of which may be mentioned one on the Diagnosis of Surgical Diseases of the Kidney, by Dr. J. Garland Sherrill, and those on Ectopic and Extra-uterine Pregnancy, by Dr. Thomas A. Ashby and by Dr. Franklin S. Newell. The pathological section only contains two lectures but they are both worthy of careful study; the first, by Dr. Aldred Scott Warthin, consists of an Experimental Study of the Effect of Roentgen Rays upon the Blood-forming Organs, with special reference to the Treatment of Leukæmia, while the second, by Dr. Charles E. Simon, is a contribution to the Study of Eosinophilia. This volume is profusely illustrated with plates, which are generally clear and helpful.

The second of the two volumes commences with a lecture by Dr. James Tyson on the Medical Treatment of Exophthalmic Goitre. Concerning this distressing affection Dr. Tyson remarks that there is reason to hope for the discovery of an antitoxin that will counteract the cytotoxin which in all likelihood produces the symptoms. In the meanwhile he acknowledges the absence of any specific remedy and calls attention to such measures of treatment as have been followed by recovery or improvement. It is said that 40 per cent. of the patients recover and that improvement is still more frequent. Mild cases may be restored to health merely by rest and the use of nourishing food. Should rest exert no benefit then the effect of drugs must be tried, bromides and digitalis in moderate doses being generally administered at first; veratrum viride may be substituted for the digitalis and belladonna is also spoken favourably of. With respect to the administration of extracts from the glands of the body, those of the supra-renal and thymus glands have been found beneficial. A remarkable case in which blennorrhaphy was employed to retain the eye in its place is narrated. Dr. A. P. Francise next writes on Gastroptosis, an article full of thoughtful suggestions, and is followed by Dr. J. French with a contribution on the Treatment of Cough. We are glad to see that he mentions the administration of ammonium chloride. This drug produces an immediate effect in cases in which no especial lesion could be discovered beyond a certain amount of emphysema and where the distressing cough had lasted for over four years. Dr. E. Barié discourses on the Dechloridation Treatment in Diseases of the Heart. Next follow Dr. T. Wainwright's remarks on the Indications for, and the Method of, Performing Venesection, which conclude the section on treatment. A very interesting lecture on the Diagnosis and Treatment of Membranous Tonsillitis, a class of cases that has been the subject of much controversy in their relation to diphtheria, follows from the pen of Dr. Lewis S. Somers. 12 different affections are minutely described and well illustrated and the treatment discussed. Dr. Howard Fussell writes on the Position and Size of the Heart in Advanced Mitral Stenosis, and illustrates his remarks by some beautiful plates. The points he wishes to emphasise are, that in this affection the right heart is so massive that it completely overshadows the left heart,

that the apex beat is formed by the right ventricle, and that the right border of the heart corresponds to the right auricle and the left border to the right ventricle. Great hypertrophy and later massive dilatation of the right side of the heart are mentioned by all authors as occurring in advanced mitral stenosis, but the former facts are more especially noted by the author. Dr. G. Klemperer contributes a clinical lecture on the Origin and Preventive Treatment of Oxalic Acid Deposits in the Urine. Here the special problem to be solved is the avoidance of the precipitation of the oxalates. He withholds for this purpose such foods as spinach, cocoa, tea, milk, eggs, cabbage, and fresh vegetables, and prescribes from 15 to 30 grains of chloride or sulphate of magnesium during the day, as he found by experiment that calcium oxalate is soluble in direct proportion to the amount of magnesium present. The section of medicine terminates with the discourse of Dr. Casey A. Wood on Death and Blindness as a result of Poisoning by Methyl or Wood Alcohol and its various Preparations.

The section of surgery contains some excellent observations by Mr. W. H. Battle on Some of the Effects of Quiet Renal Calculus, which he illustrates by many noteworthy cases. He well remarks that although the subjects of renal calculus in the majority of cases suffer severely from pain, hæmaturia, or pyuria, they are nevertheless fortunately placed inasmuch as these symptoms draw attention to the kidney before it has received irretrievable damage. Not so the class of case considered in this lecture; here the symptoms are quiescent and destruction of the kidney substance goes on gradually until the period when the disease, aggravated by septic infection from without, asserts itself in an advanced stage. Dr. Nicholas Senn, also in the surgical section, gives an excellent lecture on Gonorrhœal Synovitis and on Carcinoma of the Pylorus. In the treatment of the former, which is always so tedious, Dr. Senn finds only two agents of any value—namely, the internal administration of potassium iodide and the injection into the joint of a 3 per cent. solution of carbolic acid by one or two punctures. The latter method, he states, will bring about a permanent change for the better. The sections devoted to obstetrics, gynæcology, and pathology then follow, and finally the volume concludes with a valuable summary of the Progress of Medicine in 1905.

LIBRARY TABLE.

Surgical Suggestions: Practical Brevities in Diagnosis and Treatment. By WALTER M. BRICKNER, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary; and ELI MOSCHCOWITZ, M.D., Assistant Physician, Mount Sinai Hospital Dispensary. New York: Surgery Publishing Company. 1906. Pp. 58. Price 50 cents.—These Surgical Suggestions are merely observations made at different times in the surgical experience of the authors. They are a series of practical brevities which were published during the year 1905 in the issues of the *American Journal of Surgery;* they are now arranged in logical order and in a concise form. As an example of the suggestions we may cite the following advice: "When reducing an intussusception don't pull on the intussusceptum but push on the intussuscipiens." Though the book does not contain anything absolutely new, yet it brings before the reader points on divers questions in a graphic and attractive way. To read such a book is to spend leisure moments well and instructively. As it is composed of short paragraphs it can be taken up and put down at a moment's notice. The idea is a novel one. The 250 grouped suggestions are indexed. The book is got up in an artistic manner and does credit both to the authors and to the publishers.

Surgery: its Theory and Practice. By WILLIAM JOHNSON WALSHAM, F.R.C.S. Eng., M.B., C.M. Aberd., formerly Surgeon and Lecturer on Surgery, St. Bartholomew's Hospital, and Member of the Court of Examiners, Royal College of Surgeons of England. Ninth edition, with 620 illustrations, including 24 skiagram plates, by WALTER GEORGE SPENCER, M.S., M.B. Lond., F.R.C.S. Eng., Surgeon and Lecturer on Surgery to the Westminster Hospital; Examiner in Surgery, University of London. London: J. & A. Churchill. 1906. Pp. 1261. Price 18*s.* net.—Only three years have elapsed since the eighth edition appeared and this issue is an improvement even on its excellent predecessors. A careful examination shows the many alterations which have been made, and 126 new diagrams appear, in part additional and in part replacing old ones which have been removed. In its present form the book is one of the best text-books for the student for all except the highest examinations in surgery. Walsham's Surgery has now been known and used by students for 19 years, and under the able editorship of Mr. Walter Spencer it will, we feel sure, enter on a new lease of life.

Students' Handbook of Operative Surgery. By WILLIAM IRELAND DE C. WHEELER, (Mod.) B.A., M.D. Dub., F.R.C.S., Surgeon to Mercer's Hospital, Ex-demonstrator of Anatomy, Trinity College, Dublin. London: Baillière, Tindall, and Cox. 1906. Pp. 300. Price 5*s.* net.—This little book is intended for those who are taking a course of practical surgery for the first time, and for that purpose we think it is very well fitted. It describes the operations of ligature of arteries, amputations, excisions of joints, and the chief other operations. We think it wise on the part of the author to give only one method of performing each operation, for many students are hopelessly bewildered by the many methods which are often given in text-books. Many instruments are figured and most of the operations. Fig. 43, representing high tracheotomy, is too small to be of much use. On the whole, however, the book is well and fully illustrated.

Reports of the Royal London Ophthalmic Hospital. Edited by WILLIAM LANG, F.R.C.S. Eng. Vol. XVI., Part 4. June, 1906. London: J. and A. Churchill. Price 5*s.*—The articles contributed to this number of the Reports are: 1. Additional Cases of Hereditary Cataract, by E. Nettleship, F.R.C.S. Eng. 2. Extensive Congenital Opacity of the Retina in the Yellow-spot Region of Both Eyes (Opaque nerve fibres); High Myopia, probably also Congenital. The case was under the notice of Mr. Nettleship for 15 years. This communication is illustrated by a chromolithograph. 3. Ehrlich's Theory of Immunity in its Relationship to Ophthalmology, by J. Herbert Parsons, F.R.C.S. Eng. This article contains an interesting account of modern views on antitoxins and hæmolysins, their origin, nature, and mode of action. 4. An Analysis of a Series of Consecutive Conjunctivitis Cases seen in Aberdeen, by C. H. Usher and Henry Fraser. The number of cases of conjunctivitis seen was 320 which occurred in a total of all eye cases of 3527. 268 cases were clinically diagnosed as due to the Koch-Weeks bacillus and were confirmed bacteriologically; of these 242 presented the Koch-Weeks bacillus alone and 26 presented the Koch-Weeks bacillus and the diplo-bacillus. 78 cases were diagnosed as due to the Koch-Weeks bacillus but were not confirmed bacteriologically. 42 cases were erroneously diagnosed, 30 as other forms and 12 as diplo-bacillus which were shown bacteriologically to be due to the Koch-Weeks bacillus. The most frequent occurrence of the conjunctivitis due to the Koch-Weeks bacillus was observed between the ages of five and 13 years and in the month of November; strong evidence of the infectious nature of this form is adduced. Angular conjunctivitis is almost pathognomonic of the presence of

the diplo-bacillus, and conjunctivitis due to this cause is most common in March, August, and October. 5. Ring-Scotoma, by W. Ilbert-Hancock, illustrated. The author divides the cases observed into those in which the diseased area of the fundus corresponds with the scotoma in the field, those in which there is no such correspondence, and, finally, those in which the fundus to ophthalmoscopic examination is perfectly normal. 6. Further Cases of Thrombosis of the Central Vein, by George Coats, curator of the museum of the Royal London Ophthalmic Hospital. This article contains the results of much microscopical research and many drawings are given of the appearances presented. 7. On Metastatic Infection of the Eye associated with (*a*) Cerebro-spinal Meningitis, and (*b*) Typhoid Fever, by M. S. Mayou, with two plates. 8. Retina in Glaucoma Cup, by Malcolm Langton Hepburn, F.R.C.S. Eng., with two plates. This number of the Reports contains the index to Vol. XVI.

JOURNALS AND MAGAZINES.

The Edinburgh Medical Journal.—The September number opens with a lecture by Dr. W. Ewart on Vascular Disease in which he endeavours to bring some sort of order into the rather chaotic field of vascular ailments. He calls for a clearer terminology, a separation between functional and organic disease, and a due attention to clinical as opposed to anatomical features. Dr. A. Primrose narrates a case of Blastomycosis of the Skin in a man, and Mr. Alexander Miles continues his paper on Perforated Gastric and Duodenal Ulcers. Professor Ralph Stockman points out the uselessness of salicylates in diseases of the joints other than those due to true acute rheumatism.

The Scottish Medical and Surgical Journal.—In the September number is an interesting address on Quackery by Professor T. Annandale, delivered to the Edinburgh graduates of 1906. Mr. F. M. Caird gives an account of 25 cases of operation on perforated gastric and duodenal ulcers, and Dr. G. Keppie Paterson records an instance of the former occurrence in a boy, aged 12 years, which is dealt with in another column (p. 947). Dr. P. G. Borrowman gives his personal experiences of Dunbar's Hay-fever Anti-toxin, from which it would appear that a recent sample of this preparation was actually toxic in its effects; and Mr. R. A. Lundie defends inflation as treatment for intussusception in opposition to the condemnation meted out to this measure in the previous number of this magazine.

The Birmingham Medical Review.—Professor Robert Saundby's deliverances on the subject of Medical Ethics are always interesting and the fresh instalment in the August issue of this periodical is no exception to the rule. Mr. A. W. Nuthall writes of fractures of the upper limb and Mr. George Heaton gives practical advice as to the treatment of chronic cystitis.

The Medical Chronicle.—The two original articles in the September number are both of considerable interest. Dr. O. C. Gruner deals with cryoscopy and electro-conductivity as applied to medicine, noting the value of the former as a means of distinguishing disease of the kidney from that of the heart or bladder and as a medico-legal test in cases of drowning, and the combined processes as specially useful in investigating cases in which the urine of the two kidneys can be separately examined. Dr. John Hay writes of heart block as an invariable accompaniment of Stokes-Adams disease, the cause being either a structural lesion in or near the "bundle of His," or nervous influences affecting its conductivity.

MEDICINE AND THE LAW.

The Giving of Information to the Coroner.

AT a recent inquest at Lambeth the vexed question was again brought forward of the attitude to be adopted towards the coroner by a medical man who has attended a deceased person but has refused to certify the cause of death. In the case in question the medical man refused all information to the coroner's officer and was not summoned by Mr. Troutbeck to give evidence at the inquest, the post-mortem examination for which was conducted by Dr. L. Freyberger. At the inquest the coroner told the jury that they must assume that the medical man who had seen the deceased before death did not feel justified in giving a certificate and that he could not as coroner call upon him to give information as he had no power to pay him for doing so. Mr. Troutbeck also intimated that it was in his opinion a desirable reform that the coroner should be enabled by law to ask for a report from the medical man and to allow a suitable fee in return. With his statement of the position none should find fault and it is an argument in favour of the course adopted in the instance under discussion that if medical practitioners give information gratis in the present state of the law the tendency will be to keep things as they are. In other words, the legislature will say, "Why pay medical men for doing that which they have been contented to do for nothing?" On the other hand, the refusal of all information before the inquest is open to objections and it is well that these should be understood and considered. The coroner has to decide whether a particular case is one which calls for an inquest. In order to do this he must seek for trustworthy information and it is clear that if a medical man has intervened at any point it is he who should most fittingly give it. It would neither be wise nor courteous in the coroner to pass him over. Again, in the conduct of an inquest, the coroner has to elicit the material facts from other witnesses as well as from the medical man and he can hardly do this properly if he has no previous information concerning them. Again, it is within his discretion to decide whether a post-mortem examination should be held or not, and, as is well known, Mr. Troutbeck holds views upon this subject which rightly do not commend themselves to the medical profession. How far this attitude of the coroner may have been responsible for difficulties which arise in his jurisdiction need not be discussed but, to speak generally, the refusal of a medical practitioner who has attended a case to give the coroner any information whatever with regard to it may lay him open to the suggestion that he keeps silence because he has something to conceal and may afford the coroner an opportunity to say that it is for this reason that he hands over the post-mortem examination to an independent practitioner. We do not, of course, suggest that Mr. Troutbeck would assign any such motive to his action unless it were the true one or that any desire to conceal had anything to do with the medical man's refusal to oblige him in the recent case; the point which we have indicated, however, is one which merits consideration and the inquest referred to supplies another. The evidence of Dr. Freyberger as reported in the *Daily Telegraph* was as follows: "Death was due to heart failure accelerated by alcoholic pneumonia. There would be no difficulty in diagnosing such a case." The refusal to give information seems to have laid the medical man open to having a statement of this character made in open court and invidious inferences drawn from it, without any kind of explanation or reply from him being before the coroner or the jury. It is hardly necessary to say, in conclusion, that if in any case it were to be found that the course of justice had been impeded owing to the refusal of the medical man to give information to the coroner the consequences might be of a more or less serious character according to circumstances.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships and certificates have been awarded:—Senior science scholarship for university students: £50, A. H. Crook, B.A.; certificate, C. C. Holman, B.A. Junior science scholarships: £150, F. Cook; £60, E. G. Schlesinger; certificate, G. T. Smith. Entrance scholarships in arts: £100, W. A. Young; £50, H. Webb; and certificate, N. E. Farr. In the Dental School the entrance scholarship in dental mechanics has been awarded to Mr. E. A. Tomes.

THE LANCET.

LONDON: SATURDAY, OCTOBER 6, 1906.

The Introductory Addresses to Medical Students.

AT the beginning of the week the English medical schools were most of them opened, some formally with an address to the students, others without any such ceremony. The occasion was also marked by a large number of dinners of past and present students, the majority of the London hospitals keeping to this old-fashioned and estimable custom. We publish this week some of the addresses in full and some in abstract, and we think that they quite justify by their matter the continuance of a pleasant inaugural ceremony. It is a little the mode to laugh at the introductory address. The caustic man is wont to ask whether any good purpose is served by a gentleman, a member of the staff of the medical school, or a celebrity in the scientific or literary worlds, assuring the new recruits to medicine that they have joined a noble profession, that to succeed in it they must be observant, industrious, methodical, and well-mannered, and that they will in the future learn to prefer the esteem and affection of their patients to payment in any more easily invested shape. The caustic man is only partly right. There is a form of introductory address that most of us have at one time or another listened to, or read, that can be summed up in the above unkind manner; but even so the impression that it could profit no one to hear it is wrong. Such an address is a piece of ritual and has the virtues and drawbacks of ritual. It conforms to a set type, and if in some minds this similarity to an approved pattern challenges dissent to many other minds it comes as a renewal of accepted beliefs—a confirmation of the pleasant and honourable creed that the medical life, well lived, is the highest ideal that the citizen can attain to, the nearest effort to carry out the divine instruction to love neighbour as self. A medical man need never be ashamed of feeling his emotions stirred by the old-fashioned introductory address, and when it is delivered the hearts of the new students rejoice in it. None the less the old-fashioned address would seem to have had its day and we may expect for the future to find the orators on these occasions appealing more to the head than to the heart of their audience.

This is what has been done by Dr. DONALD MACALISTER, President of the General Medical Council, at the opening address to the medical students of the Victoria University of Manchester and by Dr. N. H. ALCOCK in addressing the medical students of St. Mary's Hospital, at which institution he is lecturer on physiology and Vice-Dean of the Medical School. Each discusses professional matters of the highest importance from the point of view of a man of affairs and we recommend all our readers to study the result. We know very well that the majority of the medical profession does not properly appreciate what are and what are not the powers and possibilities of the General Medical Council. We are constantly asked to find fault with that Council because it has not done things which the law gives it no power to do. On the other hand, we are not infrequently asked to comment upon the cruelty of the Council when it performs disciplinary duties which it specially exists by Act of Parliament to perform, and neglect of which would constitute a serious default. Dr. MACALISTER points out that the Council is frequently alluded to as "the Parliament of the Medical Profession," although it can legislate for nobody; or as "the Doctors' Trade Union," although it levies no subscriptions and offers no pecuniary benefits. And we can corroborate his words, for one view or the other of the duties of the General Medical Council is taken by correspondents of THE LANCET every week. If it were laymen only who made this kind of error it would not be surprising but it is a little curious to find the medical profession as a whole so ill-informed as to the powers of the General Medical Council and of the scope of its work. Dr. MACALISTER'S excellent address leaves no excuse for any medical man in the future being ignorant as to what the Council can do and cannot do, and it is not easy to conceive a more sensible introduction to professional life for the new medical student than this clear exposition of the functions and limitations of the educational and disciplinary authority of the medical profession. Dr. MACALISTER rightly dwells upon the undoubted fact that the Council has to a great extent made its own law, for it has ascertained what powers it possesses in so able a manner that the inadequacy of the statutes which govern it is seen to be more apparent than real. The Council has, in fact, formulated fresh applications of the law suitable to the growing complexity of modern conditions both on the judicial side of its work and on the educational side, and this should be remembered when some inactivity, dictated perhaps by prudence and perhaps by legal disability, leads to the accusing of the Council of supineness. Throughout Dr. MACALISTER is careful to insist upon a point which we are ever begging our readers to remember—namely, that the General Medical Council was created for the good of the public and not for the protection of the medical profession. The Medical Act of 1858 created the Medical Register, an official list of medical men which can be consulted by the public for the purpose of ascertaining whether any particular medical man is or is not in possession of legal professional qualifications. The General Medical Council is the body of men entrusted under the Act with the double function of education and registration—that is, the Council has to keep a register of legally qualified medical men and to insure that only persons are admitted to the Register who have attained to a certain standard of medical knowledge. It is also the duty of the Council to see that the name of no person remains on the Register whose conduct in a professional respect unfits him to occupy the position of medical adviser to the public—that being a position of delicate trust. There is not a word in the Act about the prevention of quackery; the unqualified medical practitioners are only penalised by being prevented from pretending to have registrable qualifications when they have them not. That is the legal position of the General Medical Council and complaints that the Council does not suppress quackery or takes too severe a view of "covering" are idle.

But because the General Medical Council, working under

very limited powers, exercises its functions to the full under those powers there is no reason that a condition of perfection must be regarded as reached. The Act itself might be modified, added to, or superseded by a measure more in keeping with the present condition of things, the limitations might be removed from the powers already enjoyed. Any of these things might happen, but if medical men wish to assist in the cause of reform it is necessary that they should be unanimous in their demands for amendment and should also demand only what can be proved to be for the public good. In our mind the most pressing reform necessary is the rearrangement of the curriculum of the medical student. It is notorious that the average students, and many who are above the average of attainment, do not manage to secure a place upon the Medical Register until after six years' work, whereas the statutory length of the curriculum is five years. Despite this protracted course of study the education of the student in preliminary, in scientific, and in professional work alike is the subject of much adverse comment. Some find that he spends too long a time in acquiring familiarity with the preliminary subjects; others dwell on the rudimentary nature of the tests applied to his general education; others say that he learns no midwifery; and yet others that his ophthalmological training is neglected. The problem before the General Medical Council is, in brief, how to teach the student more while taking up less time in doing it, and Dr. ALCOCK'S address contains an interesting suggestion upon the subject. He shows that the modern scientific education of the student is not wasted, as some declare, but that in general practice and consulting practice alike the value of such preliminary training makes itself felt. It is urged on all hands, however, that the student is over-burdened and Dr. ALCOCK proposes to meet the situation by a revision of the syllabus more or less universally adopted by the various educational authorities, so that the course in biology, chemistry, and physics would be much shortened. His belief is that the student would master a sufficiency of these subjects and the elements of anatomy and physiology in his first two years and could then devote a third year to completing his knowledge of anatomy and physiology and to the advanced study of one of the ancillary scientific subjects. By early specialising in biology, chemistry, or physics, the student would acquire a familiarity with the methods of scientific research that would serve him infinitely well both in the two years' purely professional work still before him and in his after life as a practitioner. Dr. ALCOCK'S scheme is not as revolutionary as it sounds and we commend it to the attention of our educational authorities.

Enteric Fever in the Army.

THAT in time of war disease may kill many more men than do the bullets of the enemy has long been recognised by military historians, and the recent war in South Africa brought the truth home to the people of this country in the shape of a very bitter lesson. Few were the homes at that time which had not some relative, distant or close, some friend, intimate or casual, at the front, and the resulting study of the casualty lists showed many more sufferers from enteric fever than from wounds, or indeed from any other cause. The experiences of the Japanese army in the more recent and larger struggle in the far East showed that in certain circumstances much of the mortality from disease can be avoided and the obvious lesson from this fact is not very flattering to us as a nation. It is in war time that enteric fever reaches proportions sufficiently appalling to arrest the attention of the most indifferent but in time of peace, too, it is responsible for a considerable number of deaths even in this country, as the recent outbreak at Fleetwood among the officers of the 3rd Battalion of the Loyal North Lancashire Regiment has forcibly reminded us. In India, where sanitary conditions are necessarily less satisfactory, enteric fever ranks as one of the most fatal maladies among our troops, being responsible during the year 1905 for no less than 1146 admissions to hospital with 213 deaths, while up to the end of June in the present year there occurred 513 cases of the disease of which 126 proved fatal. The magnitude of this terrible evil has so impressed the Commander-in-Chief in India that he has appointed a special committee of experts to consider the best measures for stamping it out.

Lord KITCHENER in his preliminary address divided the subject for discussion into five heads—namely, (1) sanitation of cantonments and barracks; (2) isolation of infected patients; (3) detection of the origin of an outbreak or of single cases; (4) inoculation; and (5) examination of the blood.[1] The first three headings embrace prevention of conveyance of infection to the troops, the fourth deals with the strengthening of the resistance of those exposed to such infection, and the fifth enforces early recognition of cases. Apart from such accidental methods of infection as the consumption of infected shell-fish—a source of danger which has now and again accounted for serious outbreaks among the civilian population in this country but which is comparatively trivial among the troops—the principal modes of conveyance of the bacillus typhosus are by drinking-water, by food, by dust and flies, by infected fomites, and by direct contagion. Of these the first is practically speaking much the most important. In saying this we do not forget that the special committee appointed to inquire into the causes of the epidemic of typhoid fever which prevailed among the troops during the late Spanish-American war was of opinion that infected water was not on that occasion an important factor in the spread of the disease but that flies undoubtedly served as carriers of infection. They stated also that men transported infected material on their persons or in their clothing and thus disseminated the disease. But all the etiology of enteric fever, whether water-borne or not, is complicated by the undoubted influences of age, race (habits, customs, and food-supply), and climate. However, it is to infected water or to contaminated milk that epidemics of enteric fever (especially of a sudden and explosive nature) have most commonly been traced and in the South African war it was after the capture of the water works and the cutting off of the water-supply at Bloemfontein that the most extensive outbreak of enteric fever occurred, at a time when dependence had to be placed on shallow wells and similar doubtful sources. Hence it is to insuring a supply of pure water, and to preventing the troops from

[1] Vide THE LANCET, Sept. 8th, p. 671.

drinking from unauthorised sources, that our efforts must in any case be directed, an obvious procedure being the boiling of all drinking water. But practical difficulties of a serious nature arise in the case of troops on the march. Sterilisation of large quantities of water for stationary bodies of men may most easily be effected by filtration but this means is not always reliable, nor is it available for small bodies moving rapidly with a minimum of impedimenta. For such it would seem that boiling all water affords the readiest way of preventing infection. Dr. H. E. LEIGH CANNEY has made gallant attempts to show that the proceeding would be feasible, and his views have met with much support not always of the most intelligent kind. At the same time a good deal of acrid criticism has been passed upon the officers of the Army and Indian Medical Services, apparently under the absurd belief that those officers were unaware that boiling has a sterilising effect upon water. We wish that an official test could be made of Dr. LEIGH CANNEY'S scheme, with the understanding that success under the ordeal, already foreshadowed by XENOPHON, should lead to further trials upon an extensive scale. In this way a concurrence of opinion might be arrived at between practical experts who are now strangely divided, and the relative parts played in the spread of enteric fever by the infected soil of camps, contagion, and other causes than water might be discussed.

All the world knows that if once water-borne disease could be eliminated outbreaks of enteric fever would become less numerous, but the influences of age and environment would still remain as well as the other, if less important, methods of spread. These latter, so far as the army is concerned, come into play at later periods when cases of the disease have already occurred among the troops. Their importance is hard to estimate. Flies were much blamed in South Africa as carriers of disease but to act in this way they must have access to infective material—a condition which should be regarded as largely preventable. Apart from gross carelessness, such as occurred in the case of the infected blankets sent home from the war, infection by fomites should not be possible. The part played by direct contagion, to which much attention has recently been directed and importance attached, has not been at present definitely determined. It is not easy to understand how the bacillus can leave the body apart from the well-known channels provided by the various excreta, and very notably and persistently so by the urine, and careful disinfection should help to minimise this mode of conveyance. It would be well in default of certain knowledge to regard every case of enteric fever as potentially contagious and to isolate such patients from those suffering from other maladies, but it goes without saying that in times of war this cannot be done and even in times of peace it might very generally be impracticable. For the recognition of mild attacks of the disease the examination of the blood affords valuable assistance and it would be advisable to apply the serum test in all cases of fever of doubtful nature. Its limitations must, however, be clearly recognised, since not only does the reaction fail to appear in the first few days of the disease but it persists for a length of time, at present unknown, after the occurrence of an attack. Of the value of protective inoculation against enteric fever it is still too soon to speak with certainty. Clearly we must not expect too much from this measure in the case of a disease which may occur more than once in the same person—which may indeed recur after a comparatively short interval of time. Nevertheless the evidence points to the production by inoculation of a period at least of raised resistance to the infection, and it can scarcely be doubted that those who are going into parts of the world where enteric fever is rife would be wise to undergo inoculation, provided that a sufficiently long interval can elapse before they reach the seat of danger. This recommendation applies particularly to the young, for the recruit is sent to India at his most susceptible age and recent arrival in that country is a powerful predisposing factor.

The University of Aberdeen: its Quatercentenary.

FORETHOUGHT, experience, and *esprit de corps*, all co-operating in good time and with a practically unlimited "war chest," had their legitimate recompense in the splendid commemoration of her fourth centenary by the University of Aberdeen. Never, perhaps, in academic history has so large, so varied, and so complex a concourse of graduates, teachers, and professional men been brought together from greater distances to coalesce in completer harmony and to separate with a profounder sense of common interests worthily represented and of a laudable undertaking pleasingly fulfilled. On a programme which it required four days to work out was concentrated the preparation of quite as many years, and all went so smoothly from beginning to end that it was difficult for the participant to realise that he was not intervening at some spontaneous gathering which owed to happy circumstance the success which cannot be "furnished to order." One element, indeed, in northern climes particularly, is so seldom to be counted upon that, even with all the preparation above referred to, it could by simple abstention have spoiled the most attractive features of the programme—we mean sunshine. But not even of that was there any stint, insomuch that more than one delegate from Southern Europe was heard to remark that Italy herself could not have been more indulgent in the combination of bright blue skies and kindly caressing air. Dame Nature herself seemed to smile on the celebration and to coöperate with art and science and an organisation almost "military" to bring it to a happy issue. Such gatherings seem likely to become a standing feature in the academic life of the future and, if promoted and organised with the forethought, the liberality, and the success of this last one, to multiply advantages well worth the pains incurred to achieve them. Provincialism becomes less and less operative in science; even the *chauvinisme*, which is still a force in the political world, is progressively diminishing in the "ampler ether, the diviner air" of pure literature, fine art, and, above all, of nature study. Ignoble claims to priority in this or that discovery or invention—claims often pressed in interests remote from the common good and in a spirit fatal to healthy coöperation—are happily becoming rare in the scientific sphere, and this in proportion as the interdependence of the sciences themselves and the indebtedness of their votaries to each other are being properly

recognised. An atmosphere of "fratellanza," as the Italians say, all-embracing in its incidence, tends to become the life breath of the seeker after truth, inducing a catholic spirit destined to banish sectarianism from the higher studies and to relegate it to the votaries of "tradition," more or less "time-hallowed." Congresses, academic jubilees, and university centenaries, all working to this end, are prolific in results from which humanity as a whole must be the gainer.

In these days when each great Power has its "army question" and its "navy question" absorbing so much of its time, its thought, and its revenue, it is consolatory to think that, *pari passu* with what Lord BEACONSFIELD called "bloated armaments" by sea and land, another warfare, peaceful in its methods, salutary in its spirit, and beneficent in its results, is being steadily and successfully waged against the forces of evil, physical as well as moral. In this service the various contingents, impersonated in their respective chiefs, were in full evidence during the commemoration just celebrated at the great University by the North Sea and, as they passed in seemingly "endless file" to receive the distinctions which they had earned, the thought could scarcely be repressed that the triumph of their campaign meant the ultimate abolition of that other warfare still impairing the moral and material energies of the great Powers. Yes, with the prevalence of the spirit in which they live and work must ere long be facilitated those "conciliatory overtures" inspired by mutual good-will which are the first step to the adjustment of international differences, while the end which "courts of arbitration" are convened to attain cannot but be the more speedily and fully realised if these are concurrently aided by the spirit of fraternity and coöperation so conspicuous at the august assembly which has just risen at Aberdeen.

Annotations.

"Ne quid nimis."

NON-MEDICAL CORONERS.

WE have for more than 60 years strongly insisted on the urgent need that exists for the appointment of medical men as coroners. The amount of legal knowledge required by a coroner is very small and may be readily acquired in a very short time, but the medical knowledge needed is very great if the coroner is to be competent to understand the medical evidence given and to interpret it to the jury so as to enable them to form an opinion. When this medical knowledge is absent the coroner is very liable to misunderstand the evidence and to express opinions not justified by the facts. An inquest was held on Sept. 12th in which the lack of knowledge on the part of the coroner led him to censure the medical man who had attended, though there was not the slightest doubt that the course advised by the medical man was the best that could be devised. A man named David Joseph was injured by a fall of rock which caused a fracture of the spine in the dorso-lumbar region. This occurred on a Saturday and the patient was seen by Mr. F. G. Aldrich, of Cwmavon, who considered on the Sunday that the injured man had recovered sufficiently from the shock to bear the journey to Swansea Hospital and therefore had him removed there. Though this was done with the consent of his relatives they brought him back to his own home three days later and death occurred on the following Saturday, a week after the injury. At the inquest the coroner, who is a solicitor, could not understand why the patient had been sent to the hospital if the case was hopeless and the moving might cause him pain. The medical man explained that there was a chance of his life being prolonged in comparative comfort if the conditions were suitable, and as proper attendance could not be obtained at the home removal to hospital was advisable. The coroner expressed the opinion that to prolong the patient's life was merely to prolong his agonies and, so far as we can gather, reprimanded the medical man for his action in the matter. From the facts before us we cannot see what else could have been done by the medical man. A fracture through the spine just above the lumbar enlargement of the cord, apparently with severance of the cord, causes a condition requiring the most skilful nursing. The absolute helplessness of the patient, the need for regular passage of the catheter, and the difficulties from incontinence of fæces, all call for the most skilled and careful nursing, and this was absolutely impossible in an isolated miner's cottage. In a hospital this skilled nursing could be obtained and we consider that in advising removal there the medical man did what was best for the patient. Doubtless the friends in bringing him home again a few days later did what they thought best, but the double journey at least doubled the risks of moving the patient and brought him back to less hygienic conditions. The somewhat sudden death, which occurred three days after his return, took place about ten minutes after he had been lifted; the reason of the death is not clear from the data which we possess but Mr. Aldrich considered that it was probably due to intraspinal hæmorrhage and this is quite possible. The coroner was necessarily ignorant of the urgent necessity in such a case for skilled nursing and for his mere ignorance he is not, perhaps, blameable, but he certainly acted unwisely in reprimanding the medical man who ordered the patient's removal to a hospital. We express our entire approval of Mr. Aldrich's action in advising the removal to Swansea Hospital and we consider that this action was not only calculated to prolong the patient's life but was also best calculated to enable him to spend it in ease and comfort. The case is a very good illustration of the helplessness of a coroner who is not a medical man. There are several points in connexion with the coroner's court which need reform but certainly the most urgent is the appointment as coroners only of men who have received a medical training.

A CHANGE OF CLOTHES.

"DRESSING for dinner" is regarded by some as a piece of arrogance and as evidencing merely a desire to appear superior to somebody else. They observe no dignity in the custom and perhaps do not realise the fact that the change of clothes is consistent with personal comfort and cleanliness, whether the new garments donned be of the evening dress pattern or not. The most important meal of the day affords to those who dine in the evening an excellent opportunity of exchanging their work-a-day clothes for a suit which has been brushed and aired. The bracing effect of a change of clothes is well known. Many a man feeling almost too fatigued after an arduous day's work to change his clothes finds himself considerably refreshed when the change is accomplished and at the same time he experiences a feeling of cleanliness and preparedness for his dinner and good digestion invariably waits on healthy appetite. The changing of clothes may even thus favourably affect nutrition. Nor need the changing of clothes be the exclusive luxury of the persons who dress for dinner. The hard-worked clerk,

the shopkeeper, and the working man would all be better if they would cast off their work-a-day clothes and put on clean clothes for the evening meal after the day of toil is over. The change freshens the body, gives a gentle stimulus to the wearied hand and head, and a brighter view of things is thereby engendered. The habit is besides cleanly, dignified, and becoming. There can be no doubt that when a man is dressed in his best on Sunday it adds to his cheerfulness and feeling of well-being. The perhaps threadbare appearance or the monotony of the work-a-day clothes chafes the mind and he enjoys the sense of cleanliness which a change of clothes invariably gives to his body. Probably the brightness and cheerfulness of the working classes on Sunday have much to do with the "best" clothes which they wear on that day. The effect of a change of clothes after a day's toil is in some respects similar to that of a bath, mildly stimulating, bracing, dispelling the feeling of tiredness and fatigue so commonly experienced. The explanation most likely is that the clothes after they have been worn all day get more or less clogged and lose temporarily their ventilating properties so that the emanations of the body do not escape freely. All who are able to change their clothes at the opportunity which the cessation of work affords them should do so, not necessarily because the manners of the time require it but because such a custom conduces to the health of both mind and body and is therefore in complete harmony with hygienic principles.

CHEMOTHERAPY.

THE investigation of the action of drugs and other means of combating disease is one of the most important problems in practical medicine and much interest therefore attaches to the work of the newly opened Institute for Chemotherapy at Frankfort. This establishment, which owes its existence to the munificence of the late Herr Georg Speyer, was on Sept. 3rd formally handed over to the municipal authorities of Frankfort by Dr. Darmstatter at the request of the widow of the founder. Professor Paul Ehrlich, the director of the institute, which after the name of the founder has been called the Georg Speyer Haus, opened the proceedings by an address on the Aims of Chemotherapy. He said that certain substances on being introduced into the living organism from without became subsequently distributed in the tissues in a manner which permitted inferences to be drawn as to the chemical constitution of the several organs. For instance, when methylene blue was injected it stained the peripheral nerve-endings blue and there was therefore reason to suppose that methylene blue stood in a particular relationship to the nerve-endings. This was expressed by saying that methylene blue was neurotropic. Most of the dyes stained several tissues and were therefore said to be polytropic. The study of the distribution of such substances was of considerable importance, for they could only exert an action on those parts of the organism which they were able to reach and where they were stored. A knowledge of the laws of distribution was therefore necessary to rational therapeutics. Drugs to which in consequence of their chemical constitution a therapeutic effect was attributed would be useless if they could not reach the diseased organ. Mere accumulation or storing up was not enough to exert any action but a second determining element was necessary to bring about a specific action. A distinction must therefore be made between two different factors—namely (1) the distributive constituents which regulated the distribution, and (2) the pharmacophoric group which caused the specific action. These relations found the most marked expression in those toxic substances which the living organisms themselves produced and which were intimately connected with the doctrine of immunity. In these toxic substances it was possible to distinguish at once a complex which controlled the distribution (the haptophore group) and the toxophore group which caused the toxic action. In a distinct class of these poisons even the haptophore and toxophore groups existed in connexion with two separable substances the union of which brought about the action. Continuing his address, Professor Ehrlich said that an essential object of the new institute would be to find substances and chemical groupings which possessed a particular relationship to special organs (organotropic substances). Their action might be compared to that of vehicles carrying loads, and it was of special importance to associate with them chemical groups having appropriate pharmacological or toxicological qualities so that the proper effect might be produced at the place where it was required. This line of pharmacological investigation has yielded good results but it must nevertheless be remembered that most of the substances used in pharmacy were directed not so much against the disease itself or its cause as against certain of the symptoms. It was therefore necessary to search for real remedies, substances which might be either organotropic or etiotropic in action. The possibility of producing certain diseases in animals and of trying therapeutic experiments on them was of the greatest value in these researches and on these lines medical science has in the study of infectious diseases already achieved great results. Here the living organism was the retort which without external aid automatically prepared specific etiotropic therapeutic substances, such as antitoxins, which were directed exclusively against the cause of the disease and were therefore monotropic. The study of these bodies was, and would continue to be, the object of the Institute for Experimental Therapeutics, over which Professor Ehrlich has presided up to now and in which he has been succeeded by Dr. Darmstatter. The object of the Georg Speyer Haus, on the other hand, was chemotherapy or the manufacture of such remedies in the laboratory of the chemist. It has been found, for instance, that certain substances possessing an intense colour have a special action on trypanosomiasis. Mice infected with one particular species of trypanosoma not only recover when treated with trypan red but are rendered completely immune to the parasite. In conclusion, Professor Ehrlich said that Professor Alfred Lingard has also observed a similar effect in the case of horses, among which trypanosomiasis caused great ravages.

SOME CASES CONNECTED WITH BUTTER AND MARGARINE.

AT the Mansion House police court recently a provision importer carrying on business at Dalston was fined £6 10*s.*, with £5 5*s.* costs, in respect of butter imported by him from Holland which was adulterated with foreign fat to the extent of from 16 to 18 per cent. He admitted the facts and gave all possible information and assistance in his power, so that there was every reason to believe that his excuse was of a genuine nature and that he had been the victim of an unscrupulous Dutch firm. The exporters, a firm using the name "Die Butterblume," at Wouw in Holland, had given him a written assurance of the purity of the butter, which was marked "Guaranti Pure Creamery." Of course, if the adulteration had been stated upon the packages no objection would have been made to it. It was mentioned that the action of the Customs authorities had been taken in consequence of warning received from the Dutch Consul-General in London, who had also informed the defendant of what the consignment might contain, and it was also stated that the same company had been concerned in nearly every case of adulterated Dutch butter brought before the court. In the circumstances the Dutch Consul-General merits the commendation of his

countrymen as well as that accorded to him by the Lord Mayor, for anything more likely to injure the reputation of Dutch butter and of the merchants dealing in it could hardly be conceived. So far as the British importer is concerned he has been fined and has lost the commission which would have been due to him from the consignees who also will have found the transaction an unprofitable one. It is, however, necessary in the public interest that where the purity of food is concerned those traders who handle it within the jurisdiction of our courts should be responsible and it is for them to supplement by their own care and watchfulness the vigilance which in this case was displayed by the public authorities. A simpler case and one of a more usual description also connected with butter was tried by the magistrate at West Ham, in which margarine was sold as butter to an inspector under the Sale of Food and Drugs Act, the proportion of foreign fat shown in the sample bought by him amounting to 83 per cent. The defendant was a married woman and her husband, who appeared as a witness on her behalf, said that he had been selling margarine just before the inspector came in and had left some of it on the block which his wife had sold inadvertently as butter. The value of this ingenuous tale was discounted by Dr. C. Sanders, the medical officer of health of West Ham, informing the bench that the husband had twice been convicted of offences similar to that forming the subject of inquiry and that the wife had been convicted once for the same thing and also for refusing to sell to an inspector. A fine of £10, including costs, was imposed. In another case a man at Royton, near Manchester, was summoned recently on account of the margarine which he sold. The county council prosecuted and the case is interesting because of the light which it throws on the shades and degrees in the quality of what is used largely as food by the working classes. The margarine in question was sold at 4*d*. a pound. Analysis showed 20·10 per cent. of water, 71·42 per cent. of fat, 6·93 per cent. of salt, and 1·55 per cent. of curd and other ingredients. The water was excessive and the fat was deficient. The defendant's solicitor said that there was no standard of margarine set by law, which said that it "usually contains," not that it "must contain," 12·15 per cent. of water and no more than 80 per cent. of fats. It was a case where the magistrates could exercise their discretion as to what was or was not margarine. The question was, Were the public deceived? It was not 1*s*. 2*d*. butter but fourpenny margarine which did not pay the manufacturers but which a certain section of the public wanted. Perhaps there ought to be no scepticism as to its not paying the manufacturers for they are men of business and do not pose as self-sacrificing philanthropists. The prosecuting solicitor said that "fourpenny margarine did pay someone as it had cost the country a large sum to get convictions in other towns." This case was settled on payment of costs by the defendant. It would be of some interest to know the composition of the fat in fourpenny margarine, what it is, whence and from what animals it comes, and how it is collected.

A WELL-MERITED COMPLIMENT TO A MEDICAL MAN.

Dr. William Stewart, who has for a great many years held a high position among the medical profession in the Republic of Paraguay in South America, was on August 5th the recipient of many tokens of professional and popular esteem. Asuncion, the capital of the Republic, is a town of some 30,000 inhabitants and the local newspapers (*El Civico* and *El Diario*), published in Spanish, give a very full account of the proceedings. Dr. Stewart was born at Grantully in Perthshire in 1830 and studied medicine at the Universities of Edinburgh and Aberdeen, graduating at the latter as M.D. in 1853 and taking the diploma of L.R.C.S. Edin. in 1855. During the Crimean war he had charge of the D Division Barrack Hospital at Scutari, near Constantinople, and on the conclusion of the war he was sent by the British Government to Rio de la Plata where he arrived in September, 1856. In March, 1857, he entered the Paraguayan service, his first task being to reorganise the medical department of the army and to form a school of medicine in which at the beginning there were 50 students. In 1864 he was made surgeon-major in the army and surgeon-major-general in 1867. Not long after this he went to Edinburgh and studied the use of antiseptic methods in Lord Lister's wards in the Royal Infirmary. Returning to Paraguay in 1870, he introduced antiseptic surgery in Asuncion, where he was surgeon both to the military hospital and the Caridad Hospital and was also at the head of the department of health. Paraguay has had a very troubled history as regards domestic politics, wars with neighbouring nations, and general finance, and in addition to his professional work Dr. Stewart has rendered the Government of his adopted country various political services both in South America and England. By his marriage with Señora Venancia Frias, a lady belonging to one of the principal Paraguayan families, he has had three sons and four daughters. The celebrations of August 5th were in recognition of Dr. Stewart having completed 50 years of professional work. In the morning there was a procession on a large scale organised by two football clubs and consisting mainly of students. Dr. Stewart, in acknowledgment of the compliment, eulogised football in glowing terms and a match followed. In the afternoon at the National Theatre there was a crowded public meeting arranged by the medical profession of the town and attended by the principal inhabitants. The chief part was taken by Dr. Manuel Pérez, who delivered an eloquent speech, and at the conclusion of it, in the name of the medical profession of Paraguay (*el cuerpo médico del Paraguay*) he handed to Dr. Stewart a gold medal and a numerously signed address. Dr. Stewart then returned thanks in moving and appropriate terms, after which the proceedings concluded with some remarks by Dr. Fernando Gorriti.

A PURIN-FREE DIET.

THE action of purin bodies and their metabolism have been carefully studied during recent years, with the result that a comparatively new school of dieteticians has arisen who consider that it would be well for the human race if purin-containing foods could be as far as possible eschewed. Perverted metabolism is, of course, responsible for many human ills and there are indications apparently that the purins place a strain upon the metabolic processes which amongst other things may account for the prevalence of gout and urinary disorders. The purin bodies in certain vegetable foods, as, for example, peas, beans, asparagus, and even oatmeal, are credited with furnishing a reason for the excessive excretion of uric acid which follows their ingestion. The presence of a notable amount of purins again in beer may possibly explain the harmful effects of this beverage in gout or account for some of the pathogenic changes which result from an indiscreet indulgence in alcoholic beverages. Purins, however, appear to be absent in all spirits and in port, sherry, and claret, but they are, of course, abundant in tea and coffee. It may be stated that broadly the purins are nitrogen products which favour in metabolism the formation of uric acid. The best known type next to uric acid itself is perhaps caffeine or xanthin. Apparently the purin bodies contain urea groups and analysis seems to show that very few foods, either animal or vegetable, are entirely free from these nitrogenous bodies. Still the variations are pretty wide: sweatbread, for example, contains 70·43 grains per

pound and mutton 6·75 grains per pound, salmon 8·15 grains per pound, cod 4·07 grains per pound, beans 4·16 grains per pound, and onions 0·06 grain per pound. It is, however, obvious that the choice of a variety of foods becomes somewhat restricted when the consumer decides to limit himself to practically purin-free foods. In this choice, moreover, a good many of the palatable and tasty foods would certainly have to be omitted. To the epicure who is not necessarily a glutton this would mean so many dietetic joys absolutely cut off. About what ought or ought not to be eaten or drunk there are certain to be extreme views. The vegetarian and fruitarian are examples of food extremists who have, as a matter of fact, very little accurate physiological and chemical data to support their favourite views. The absolute abstainer, again, from all alcoholic drinks is just as much an extremist as the toper. In the case of the advocate for a purin-free, or as it is sometimes erroneously called, uric-acid free diet (for we are not aware that any food contains uric acid as such), it has to be admitted that nearly all foods contain minute traces of purins, so that it is evidently not possible to eliminate purins altogether. Further, as will be seen from an interesting paper on this subject which we publish in another column this week, the purin-free food eater is enjoined to eat sparingly, to reduce the number of meals, and to be careful about completing the masticating process, otherwise the fact that a diet is purin-free is of little value. Apart from purins this is of course excellent advice to the patient obviously suffering from disease which is the result of over-indulgence in rich foods. A great number of people would enjoy far better health if they would be content with plain and plainly served food and were to eat less than their appetites so frequently tempt them to do. It is very generally accepted that the average man eats a good deal more than his actual physiological necessities require, and if that is so, and if he would only observe strict sobriety in regard to both the food and the drink which he consumes, we imagine that the absolutely purin-free diet might safely be disregarded. But it is assuredly something accomplished if under the name of purin-free diet the same end is attained and it must be admitted that we are bound to select special foods for special circumstances.

THE BRENTFORD ISOLATION HOSPITAL.

THE allegations which have recently been made with reference to the administration of this hospital are of such a serious nature as to call, it seems to us, for investigation by the medical department of the Local Government Board or of some tribunal other than that of the local authority. The statement which has been circulated in the lay press to the effect that two of the nurses have been discharged accentuates the necessity for an inquiry because, if it be true, it shows that the general supervision of the hospital by the Brentford district council has been of a very indifferent nature and it is improbable that the council can set matters right by the summary dismissal of two of the officials. Moreover, the local district council is not well fitted to adjudicate upon a question which requires for its proper comprehension an intimate knowledge of the difficulties which beset the administration of isolation hospitals. It is alleged that on May 19th a girl was taken to the hospital suffering from scarlet fever, that she was discharged on July 3rd, and that on July 11th two other children were removed from the same house suffering from scarlet fever. So far we have another illustration of the not uncommon phenomenon of "return" cases and whether blame is to be attached to the hospital officials is a matter which can only be determined by the evidence. It is, however, stated that the patient's finger- and toe-nails shed themselves after leaving the hospital and that her head was verminous. The latter part of this statement, if substantiated, is a grave charge against the nursing. But it is further alleged by the father that the two children who are supposed to have contracted scarlet fever from the case first discharged were on their arrival at the hospital placed in a ward in which there was an outbreak of measles. This is the point upon which much additional light is needed before a fair judgment can be passed. It is necessary to know what was done with the first cases of measles which occurred and whether they had been removed and the ward disinfected before the "return" cases which are here in question were admitted. Furthermore, we should be glad to know what is the isolation provision in the shape of small wards which the hospital possesses and what is the number of the nurses. The fact that both the children contracted measles and that one of them died necessitates a searching inquiry, and the allegation that "no nurse or attendant walks the ward between the hours of 10 P.M. and 5 A.M." will need considerable explanation. No reference has so far been made to the medical control of the hospital but this is a matter which should be gone into very thoroughly. Before the blame can be equitably apportioned the facts as regards the control exercised by the district council must be ascertained and the adequacy of the nursing and small ward accommodation determined. We have for several years past urged in the columns of THE LANCET the desirability of providing adequate small ward accommodation in isolation hospitals and no one at all familiar with isolation hospital administration would question the statement that there would be fewer patients contracting a superadded disease if adequate isolation wards and a sufficiency of nurses were available. But it is in the provision of these two things that local authorities are often very hard to move and they sometimes leave the officials of the hospital to bear the brunt of the short-sighted policy of the district council. We do not in the least imply that this has been the case in the present instance, but the fact of lack of accommodation being a not infrequent feature of isolation hospitals suggests that if the Brentford allegations are to be investigated adequately a central rather than the implicated local authority should undertake the task. The matter should certainly not be allowed to rest in its present very unsatisfactory position.

RUPTURED GASTRIC ULCER IN A BOY.

GASTRIC ulcer is rare in children; still rarer is ruptured gastric ulcer. In the *Scottish Medical and Surgical Journal* for September Dr. G. K. Paterson states that he has been able to find recorded only 14 cases of ruptured ulcer in children under the age of 14 years. He reports the following case. A boy, aged 12 years and eight months, began to suffer from epigastric pain which occurred irregularly with regard to meals, sometimes immediately after, sometimes half an hour after, sometimes two hours after, and sometimes not at all. Previously he had not suffered specially from any ailment except recurring laryngeal catarrh. The pain was of a burning character and there was no gastric flatulence or vomiting. The tongue was slightly furred. A light diet and remedies for dyspepsia were prescribed with little result. 12 days after the onset, at about 7 P.M., after a light dinner he suddenly felt a severe pain in the abdomen. Dr. Paterson saw him an hour later and found him collapsed and pale, with slow pulse and rigid abdomen. There was no loss of liver dulness and the temperature was normal. He complained much of pain about the umbilicus and almost more of pain in the left shoulder, the latter being aggravated with each inspiration. The abdominal pain was relieved by a fomentation and gentle friction and all the symptoms of

shock passed off in half an hour. The case looked like one of severe colic but the shock and previous pain made Dr. Paterson doubtful. He gave instructions that he was to be sent for if the boy became worse. He saw the boy again next morning at 9 A.M. The patient had vomited at 9 P.M. on the previous evening and again in the night and there had been frequent retching. The abdominal pain became easier during the night. There were signs of peritonitis—distended abdomen, raised temperature, and loss of liver dulness. 18 hours after rupture laparotomy was performed by Mr. F. M. Caird. General peritonitis with a mass of lymph over the liver and stomach was found. When the lymph was separated a punched-out ulcer of about the size of a split pea was found in the anterior wall of the stomach about two inches from the middle of the lesser curvature. A smear of peritoneal fluid was taken and showed a culture of staphylococci. The peritoneum was washed out and the lymph was swabbed off the surface of the liver and from the recto-vesical pouch. Nutrient enemata were given for three days and then mouth-feeding was begun. Convalescence was interrupted by a severe attack of double pneumonia which almost proved fatal. A case of perforation of a gastric ulcer in a boy, aged 13 years, has been recorded in our columns by Mr. W. Watson Cheyne and Dr. H. Wilbe.[1] The pain and rigidity were most marked on the upper part of the right side. Fulminating appendicitis was diagnosed but on operation a perforated gastric ulcer was found which was successfully sutured.

THE PUBLIC HEALTH OF BELFAST.

IN another column we publish an account from one of our Irish correspondents of the election of the superintendent medical officer of Belfast. The officer elected is Mr. H. W. Baillie. His qualifications, as stated in the Medical Directory, are L.R.C.P. & S. Edin. and L.F.P.S. Glasg., and we learn from the reports of the meeting of the Belfast council held on Oct. 1st that he has recently obtained a Diploma in Public Health, but from what body is not stated. The health of Belfast is by no means in a satisfactory condition. For instance, the death-rate per 1000 for the year 1905 was 20·1, being second highest on a list of 19 towns in the United Kingdom. When we come to the disease in the Registrar General's annual summary entitled "fever," of which the definition is "continued fever, mainly enteric," we find that 135 deaths under this heading occurred in Belfast, 131 of these being due to enteric fever and the other four to pyrexia. The figures per 1000 inhabitants in 19 towns of the United Kingdom for 1905 show that the Belfast death-rate was 0·38, the next highest on the list being Salford, with a death-rate of 0·19. The Belfast fever death rate is thus exactly twice the death-rate of the next town on the list. To grapple with conditions like these we might have thought that the Belfast city authorities would have chosen a medical officer with more practical experience of public health work than Mr. Baillie apparently possesses. The appointment is subject to the approval of the Local Government Board and we hope to deal with the matter more at length in a future issue.

THE WARRANTING OF MILK.

AT the South-Western police court a point has been raised with regard to the sale of milk adulterated with added water which apparently will require a decision of the Divisional Court before it is finally decided. The defendant who sold the milk retail relied for her defence upon a warranty from the wholesale dealer, but the legal representative of the Battersea borough council objected to the alleged warranty on the ground that it was too indefinite in its terms. The magistrate read the document, in which the words relied on were "all milk supplied is to be pure," and expressed the opinion that it was full of ambiguity, concluding the case by fining the defendant, who had been convicted four times before, £5, with costs. It was stated that the question of the sufficiency of the warranty would be referred to the High Court and it is certainly one of some importance to milk-sellers and to the public.

[1] THE LANCET, June 11th, 1904, p. 1641.

UNFOUNDED REFLECTIONS UPON A MEDICAL MAN.

AN inquest was held on Sept. 24th on the body of a Mrs. Oliver, a widow, aged 63 years, who died on Dec. 1st, 1905. Some two months ago the body was exhumed for an inquest which was then held and adjourned. The body had been apparently exhumed on the request of the brother of the deceased and Mr. C. E. Adams, the medical attendant, offered no objection. The affidavit of the brother of the deceased stated that Mr. Adams had been in a great hurry to get the body buried. As a matter of fact, it had been buried six days after the death. The affidavit also stated that the deponent believed the death of his sister to be due either to the administration of improper drugs or to incorrect treatment. Evidence was given by the deceased's sister-in-law and by her maid that the deceased had for a long time been suffering from her heart. Mr. Adams, who gave evidence, said that he had first treated Mrs. Oliver in 1898 for dyspepsia. Some three years afterwards symptoms of cardiac degeneration set in. Dr. J. Rose Bradford had seen her with him in 1904 and had agreed entirely with his treatment. As to the funeral he had had nothing to do with it. Evidence was also given by Dr. W. H. Willcox, analyst to the Home Office, and by Dr. F. J. Smith, professor of forensic medicine at the London Hospital. The evidence of this gentleman showed that there was no indication whatever of any irritant or corrosive poison, or indeed of any other poison. The jury returned a verdict saying that the certificate of death given by Mr. Adams was perfectly correct and that there was no ground for attributing any unprofessional conduct to him. We must congratulate Mr. Adams upon the result of this case, but the conduct of the relatives responsible for the exhumation and the inquest was so singularly foolish that it almost seems unnecessary to say anything about it. The case is only one more example of the way in which medical men can be worried and harassed for doing no more than their duty, and we are glad to see that all the lay papers give publicity to the case and especially to the verdict of the jury.

ON Sept. 28th Mr. Alderman Thomas Boor Crosby, M.D. St. And., F.R.C.S. Eng., was admitted a Sheriff of the City of London for the ensuing year. On Sept. 26th Dr. Crosby was presented with his shrieval chain and badge on behalf of the inhabitants of his ward, the Langbourn, by Lord Avebury. The chain contained six medallions bearing the arms of the Turners' Company, the Royal College of Surgeons of England, the University of St. Andrews, the Society of Apothecaries of London, St. Thomas's Hospital, and the City of London.

THE Mabel Webb research scholarship, tenable by past or present students of the London (Royal Free Hospital) School of Medicine for Women, will be awarded in October. The scholarship is worth £30 a year and is renewable for a second or a third year. The candidate must undertake

research work in pathology, physiology, or chemistry. Applications should be sent to the secretary of the school by Oct. 20th stating the nature of the research work which it is proposed to undertake.

THE opening address of the session 1906–07 of the North East London Clinical Society will be given on Thursday, Oct. 11th, at the Tottenham Hospital at 4 P.M. by Sir Halliday Croom. The subject of the address will be the Obstetrical and Gynæcological Relations of Exophthalmic Goitre. All medical practitioners are cordially invited. The annual dinner will be held at the Great Eastern Hotel, Liverpool-street, at 7.30 P.M. on the same day.

THROUGH the munificence of Mrs. Stephen Ralli the endowment of the Bacteriological and Pathological Laboratory which she established at the Sussex County Hospital in memory of her husband has been increased to £20,000 and in consequence of this addition to the fund it is proposed to appoint an assistant pathologist. The post will be advertised shortly and the office will be entered upon at about the commencement of the new year.

WE regret to announce the death, at the age of 60 years, of Brigade-Surgeon Lieutenant Colonel Alexander Crombie, C.B., M.D. Edin., I.M.S. retired, which took place in London on Sept. 29th. We hope to give an account of his life and work in an early issue.

IT is officially announced in the *London Gazette* that Dr. Diarmid Noel Paton has been appointed to the chair of physiology in the University of Glasgow *vice* Professor John Gray McKendrick, LL.D., F.R.S., who has resigned.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Oct. 4th, 1828.

There is scarcely a library in these countries, which the fashionable spirit of monopoly has not fenced round with some impossible or inconvenient conditions of admission. It is this "dog in the manger" spirit which has given rise to a pleasant story, told of the College of Physicians of London. "A book, which ought not to be unknown by any well-read man, was once inquired for in their library, by a person of more than ordinary curiosity; the volume was in a press which was locked, and after a very diligent search, the key was found in a place where it was clearly ascertained, from circumstances, it must have remained undisturbed for eighty years!" We can match this story by one in which we were ourselves the principals in the library of the Dublin College of Surgeons: "We were there once on a visit; the conversation happened to turn on the discoveries of Laennec; an appeal was made to his volume, which was taken down from one of the shelves for reference; but, *mirabile dictu*, though the work, we learned, had been nearly two years in the library, not a single sheet of it had yet been cut." On learning the regulations of the establishment, and that Mr. Colles, one of the principal surgeons of Dublin, was then ridiculing the invaluable discovery of Laennec, by representing his stethoscope as useful only for carrying adhesive plaster, our surprise, of course, ceased. But to preserve books this year in this way, that they may be preserved the next, and so on for ever, is idle; it would almost be better to use them, like the Caliph Omar, in heating baths and ovens, than not to use them at all. A reasonable wear and tear of books must be borne with; they ought to be used as much as is consistent with their preservation, and preserved as much as is consistent with a free and ample use. The safer side to err upon, especially with such works as may be replaced, is to sin by too great a use of them; for books, when worn out, may be restored; but the opportunity of acquiring knowledge, which is afforded to a generation, if once lost, can never be redeemed.[1]

THE LONDON MEDICAL EXHIBITION.

THE organising committee of the London Medical Exhibition may be congratulated on the result of its experiment last year of inaugurating an annual medical exhibition in London, because this year the number of exhibitors has not only considerably increased but the exhibition on the whole presented a really representative selection of novelties in regard to drugs, special foods, medical and surgical appliances, and so on of general interest to the medical profession. The exhibition was opened at the Royal Horticultural Hall, Vincent-square, Westminster, on Oct. 1st and closed on the 5th, during which interval it was obvious that a great many medical men appreciated this opportunity of coming into contact with modern surgical, pharmaceutical, dietetic, and sanitary advances. The attendance, despite the inclemency of the weather on the second day of the exhibition, was satisfactory to all concerned. The exhibits were attractively arranged and the space allotted to the stalls was such as to be comfortable alike to the exhibitor and the visitor. As a rule, the visitor was not unduly pressed into inspecting the exhibits and on the whole the conduct of the exhibitor was dignified and the fact that the exhibition was opened exclusively in the interests of medical men was carefully borne in mind.

The majority of the stalls appeared to be devoted to the exhibition of improved pharmaceutical preparations and of advances in drugs. Messrs. Duncan, Flockhart and Co. (143, Farringdon-road, London, E.C.) presented specimens of preparations containing formates, the best type of which is the compound syrup of glycerophosphates and the formates of sodium and potassium. The formates are reported to give excellent results in muscular fatigue and in neurasthenia and nervous prostration. Another interesting preparation was a carbolated antiseptic lotion containing boric acid and phenol which serves as a useful gargle for septic throats. The exhibit included the well-known anæsthetic products of this firm—chloroform, ether, and ethyl chloride. Messrs. Baiss Brothers and Stevenson (4, Jewry-street, London, E.C.) exhibited a number of fine pharmaceutical preparations, including ophthalmic capsules, medicated ear bougies, bismuth compounds, and a glycerol preparation of glycerophosphates and hæmoglobin. There was also exhibited an excellent preparation of glycerophosphates and formates. Risiccol (Rudolph Demuth, 31, Budge-row, London, E.C.) has already been reported upon in our analytical columns. It consists of a castor oil powder containing pure castor oil and magnesia. It is practically tasteless and the well-known aperient qualities of the oil are preserved intact. There seems to be little doubt that purified petroleum, though not itself of any dietetic value, is an excellent vehicle for the administration of the hypophosphites, while it is antiseptic and soothing in particular to the intestinal tract. One of the best preparations of this kind is Angier's emulsion (Angier Chemical Co., Limited, 32, Snow-hill, London, E.C.). This company also prepares tablets for the throat which contain specially purified petroleum, combined with pure elm bark and other ingredients suitable for application to the throat under irritable conditions. There were a number of elegant pharmaceutical preparations on the stall of Messrs. C. J. Hewlett and Son (35 and 42, Charlotte-street, London, E.C.). We may refer to the excellent bismuth and pepsin preparation which has been before the profession as a valuable agent in dyspepsia, gastritis, and sickness. The exhibit included a number of antiseptic preparations of merit some of them contained in the form of cream or jelly in collapsible tubes. In addition to panopepton and

[1] Excerpt from a leading article on the library of Dublin College which "has lately enacted a law, by which, together with the payment of three guineas, the candidate for the honour of reading in the library, is to be ballotted for, and one-third, at least, of the whole votes required to secure his election."

pepsencia, which are well known in the treatment of feeble digestive powers, Messrs. Fairchild Bros. and Foster (Snow Hill Buildings, London, E.C.) exhibited a pure lecithin and their peptogenic milk powder. The exhibit included certain digestive products and enzymes. Messrs. F. Newbery and Sons (27 and 28, Charterhouse-square, London, E.C.) exhibited a preparation which they call liquid pancreopepsine and which contains pepsin, pancreatin, and lactic and hydrochloric acid. There was shown also ingluvin, the bitter principle extracted from the gizzard of the domestic chicken, which is said to check emesis during gestation and to give relief in atonic dyspepsia. The exhibit of Messrs. Burgoyne, Burbidges, and Co. (12 and 16, Coleman-street, London, E.C.) included the special preparation of the Heyden Chemical Manufacturing Co. Amongst these were acid acetylosalicylic tablets for rheumatism and bisalicylate of bismuth, which latter is of value as a gastro-intestinal antiseptic. The exhibit included also colloid mercury and silver preparations. Messrs. Thomas Christy and Co. (4, 10, and 12, Old Swan-lane, Upper Thames-street, London, E.C.) exhibited a wide variety of drugs and medical preparations. Amongst these may be mentioned "pankreon," a preparation obtained from fresh pancreatic glands combined with tannic acid, and said to be useful in gastritis; ergoapiol, a compound of apiol, ergotin, and oil of savin, for administration in amenorrhœa and dysmenorrhœa. One of the largest stalls was that on which Messrs. Parke, Davis, and Co. (11, Queen Victoria-street, London, E.C.) exhibited their preparations, including biological and pharmaceutical products. Amongst the former were various adrenalin products, anti-diphtheria serum, and thyroidectin obtained from the blood of thyroidectomised animals; amongst the latter there were acetozone, a very powerful antiseptic, chloretone, a hypnotic and remedy for seasickness, and other preparations. There were many interesting pharmaceutical preparations on the stall of Messrs. Hearon, Squire, and Francis, Limited (38 and 40, Southwark-street, London, S.E.). These comprised an elixir containing heroin and terpene hydrate which is of distinct value as an expectorant and useful as a pectoral mixture; codeina jelly, and a compound hypophosphite syrup with a minimum of acid. The preparations included tablets of bone marrow, brain, kidney, suprarenalin extracts, and thyroid gland. Organic therapeutic products were the feature of the exhibits of Messrs. Armour and Co., Limited (Atlantic House, Holborn Viaduct, London, E.C.). There were also digestive ferments of high and standard activity, such as pepsin and pancreatin. Synthetics formed the feature of Messrs. A. and M. Zimmermann's exhibit (3, Lloyd's-avenue, London, E.C.). There were urotropine, an urinary antiseptic, and beta-eucaine, a non-toxic and non-irritating local anæsthetic. Besides these there were organic therapeutic preparations, suggested by Professor Poehl of St. Petersburg. Diuretin, described as a well-known diuretic and anti-asthmatic; santyl, as a tasteless and non-irritant salicylic ester of sandalwood oil for the internal treatment of gonorrhœa; and styptol, as a harmless and trustworthy uterine hæmostatic derived from cotarnin were the drugs of note exhibited on the stall of Messrs. Knoll and Co. (27A, St. Mary-at-Hill, London, E.C.). The exhibit included certain dermatological preparations. Alkaloidal products formed the major part of the exhibit of Messrs. C. and F. Boehringer and Soehne of Germany, their agents in London being Messrs. Domeier and Co., Limited (20 and 21, Mark-lane, London, E.C.), but some important preparations were exhibited in the shape of arseno-ferrotose, a compound of arsenic and iron in organic combination; lactophenine, an antipyretic and hypnotic; and ceridin, which is described as a yeast fat and useful in furunculosis. Mr. E. Merck (16, Jewry-street, London, E.C.) showed a number of his fine chemicals and pharmaceutical preparations, including glucosides, alkaloids, sera, and organic bromine and iodine preparations (bromopin and iodipin which are said not to give rise to bromism or iodism respectively). Messrs. Arthur H. Cox and Co. (Brighton, and 37, Berners-street, London, W.) exhibited some beautifully made pills and tablets. A very large assortment of elegant pharmaceutical preparations was on view on the stall of Mr. William Martindale (10, New Cavendish-street, London, W.). These included many up-to-date preparations, such as the elixir of sodium formate and a cinnamate and coumarate preparation for the treatment of malignant disease.

(To be concluded.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8386 births and 5290 deaths were registered during the week ending Sept. 29th. The annual rate of mortality in these towns, which had been so high as 22·3, 21·1, and 19·3 in the three preceding weeks, further declined last week to 17·4. During the 13 weeks of last quarter the death-rate in these towns averaged 16·2 per 1000, the rate during the same period in London did not exceed 15·4. The lowest death-rates in the 76 towns during the week under notice were 4·8 in Hornsey, 7·2 in King's Norton, 9·3 in Leyton, and 9·4 in Willesden; the rates in the other towns ranged upwards to 26·1 in Middlesbrough, 26·2 in Stockport, 28 5 in Merthyr Tydfil, and 30·5 in Preston. The 5290 deaths in the 76 towns showed a further decline of 575 from the high numbers in recent weeks, but included 1354 which were referred to the principal epidemic diseases, against 2532 and 2011 in the two previous weeks; of these, so many as 1137 resulted from diarrhœa, while 53 were referred to whooping-cough, 52 to diphtheria, 50 to "fever" (principally enteric), 34 to measles, 28 to scarlet fever, and not one to small-pox. The deaths from these epidemic diseases were equal to a mean annual rate of 4·5 per 1000 in the 76 towns, while the rate in London did not exceed 2·9. The lowest death-rates from these epidemic diseases last week were 0·9 in Leyton, 1·0 in Yarmouth and in Burton-on-Trent, and 1·4 in King's Norton; whereas they ranged upwards in the other large towns to 9·8 in Grimsby, 9·9 in Middlesbrough, 11·0 in Hanley, and 13·4 in Preston. The deaths referred to diarrhœa (mainly of infants under one year of age), which had been 2342, 2318, and 1768 in the three preceding weeks, further declined last week to 1137; the highest annual rates from this disease during the week were 8·0 in Newcastle-upon-Tyne and in St. Helens, 9·8 in Grimsby, 11·0 in Hanley, and 13·0 in Preston. Whooping-cough caused the highest death-rates last week in South Shields; and measles in Rochdale, Norwich, and Oldham. The fatal cases of diphtheria were less numerous than in the previous week but included five in Sheffield and five in Manchester and Salford. The 50 deaths referred to "fever" considerably exceeded the number returned in any previous week of this year and included five in Bradford, four in Hull and in Nottingham, and three in Liverpool. Of the fatal cases of scarlet fever, six were returned in Sheffield. No case of small-pox was under treatment in the Metropolitan Asylums hospitals during the week, no case of this disease having been admitted thereto since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had increased in the four preceding weeks from 3042 to 3164, further rose to 3388 during the week under notice; 533 new cases were admitted to these hospitals during the week, against 415, 440, and 473 in the three previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 105 and 149 in the two previous weeks, declined again last week to 133, and were 28 below the corrected average in the corresponding week of the four preceding years, 1902–05. The causes of 45, or 0·9 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Sheffield, Bristol, West Ham, and in 46 other large towns; the proportion of uncertified deaths showed, however, a considerable excess in Newport, Sunderland, Liverpool, and Birmingham.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 16·8 and 16·1 per 1000 in the two preceding weeks, was again 16·1 in the week ending Sept. 29th and was 1·3 below the mean rate during the same week in the 76 English towns. The rates in the eight Scotch towns last week ranged from 11·0 and 13·6 in Aberdeen and Perth to 17·7 in Glasgow and 19·6 in Leith. The 552 deaths in the eight towns corresponded with the number in the previous week, and included 104 which were referred to the principal epidemic diseases, against 136 and 122 in the two preceding

weeks. These 104 deaths were equal to an annual rate of 3·0 per 1000, which was 1·5 below the rate from the same diseases in the 76 English towns. Of these 104 deaths, 82 resulted from diarrhœa, nine from whooping-cough, six from "fever," four from diphtheria, and one each from measles, scarlet fever, and chicken-pox. The deaths referred to diarrhœa in the Scotch towns, which had been 104 and 87 in the two preceding weeks, further declined to 82 in the week under notice, but exceeded by 46 the number in the corresponding week of last year; they included 57 in Glasgow, nine in Dundee, four in Leith, and three in Greenock. Eight of the nine fatal cases of whooping-cough and all the six deaths referred to "fever" occurred in Glasgow; of the latter, two were certified as cerebro spinal meningitis. Two deaths from diphtheria were returned in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 50, 58, and 66 in the three preceding weeks, were again 66 in the week under notice, and were seven below the number returned in the corresponding week of last year. The causes of 19, or 3·4 per cent., of the deaths registered during the week were not certified; the mean proportion of uncertified deaths in the 76 English towns during the same week did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 29·4 and 26·8 in the two preceding weeks, further declined to 24·5 during the week ending Sept. 29th. During the 13 weeks of the past quarter the death-rate in the city averaged 21·4 per 1000, the mean rate during the same period being only 15·4 in London and 13·1 in Edinburgh. The 178 deaths of Dublin residents during the week under notice showed a further decline of 17 from the high numbers in recent weeks, and included 37 which were referred to the principal epidemic diseases, against 52, 43, and 39 in the three preceding weeks; these 37 deaths, however, were equal to an annual rate of 5·1 per 1000, the death-rate during the week from the same diseases being only 2·9 in London and 1·2 in Edinburgh. Of these 37 deaths no fewer than 31 resulted from diarrhœa (against 49, 39, and 34 in the three preceding weeks), five from whooping-cough, and one from "fever," while no fatal case of measles, scarlet fever, diphtheria, or small-pox was registered. The fatal cases of whooping-cough showed a marked increase upon recent weekly numbers. The deaths both of infants and of elderly persons again showed a considerable excess. Six inquest cases and five deaths from violence were registered; and 64, or 35·9 per cent., of the deaths occurred in public institutions. The causes of four, or 2·2 per cent., of the deaths registered during the week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet Surgeon Joseph Henry Whelan has been placed on the Retired List at his own request (dated Oct. 1st, 1906).

Civil Practitioner N. P. Kirby to be Surgeon and Agent at Balbriggan.

ROYAL NAVAL VOLUNTEER RESERVE.

James Keogh Murphy has been appointed Surgeon (dated Sept. 24th, 1906).

INDIAN MEDICAL SERVICE.

Colonel W. G. King, C.I.E., is confirmed as Inspector-General Civil Hospitals and Sanitary Commissioner, Burma. Lieutenant-Colonel L. A. Waddell, C.B., C.I.E., is permitted to withdraw his application to retire on pension. Major W. H. W. Elliot, D.S.O., I.M.S., is deputed to proceed to America to represent the Government of India at the Military Medical Congress at Buffalo.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major Henry G. Thompson to be Surgeon-Lieutenant-Colonel (dated Sept. 4th, 1906); Surgeon-Lieutenant-Colonel Henry G. Thompson, having attained the prescribed limit of age, is removed from the Army Medical Reserve of Officers (dated Sept. 25th, 1906).

DEATHS IN THE SERVICES.

Surgeon-General William Williamson, I.M.S. (retired), at Boscombe, on Sept. 17th, aged 85 years. He obtained the rank of surgeon-general in 1879 and retired in that rank on pension.

Brigade-Surgeon-Lieutenant-Colonel Alexander Crombie, C.B., I.M.S., Bengal (retired), in his sixty-first year, at his residence in Gloucester-place, London, W., on Sept. 29th. He retired in 1898 while serving as superintendent of the European General Hospital at Calcutta. He was a lecturer on tropical diseases at the London School of Tropical Medicine and Honorary Physician to King Edward VII.'s Hospital. For three years from 1900 he was a member of the India Office Medical Board. He was created a Companion of the Bath in 1902.

VOLUNTEER MEDICAL EXAMINATION.

It is announced that an Army Order will shortly be issued respecting the medical examination of Volunteer recruits, in connexion with paragraph 120 of the Volunteer Regulations and paragraph 13 of the instructions for the physical examination of recruits.

The grant to medical officers of rewards for distinguished and meritorious service is now restricted to officers on the retired list.

The hospital ship *Maine* has arrived at Plymouth from Malta. 41 invalids have been landed and the ship has proceeded with other cases for Haslar Hospital.

Correspondence.

"Audi alteram partem."

DIRECT REPRESENTATIVES AND THE GENERAL MEDICAL COUNCIL.

To the Editors of THE LANCET.

SIRS,—The time is rapidly approaching when the registered practitioners of England and Wales will again be called upon to exercise the privilege of electing three of their number to represent them in the General Medical Council. I shall esteem it a favour if you will permit me to state through your columns that it is my intention to again offer myself as a candidate for re-election. During the ten years I have had the honour of a seat in the council chamber as a Direct Representative I have done my utmost to promote the cause of medical reform and to advance the best interests of the profession as a whole. I am led to believe that I have discharged the duties to the satisfaction of the profession generally from the fact that, in addition to receiving during the last few months numerous renewed promises of support from medical men in all parts of the country, I have received official intimation that resolutions in favour of my candidature have been passed by the following, among other, important medical organisations—viz., the Society of Members of the Royal College of Surgeons of England; the Association of Physicians and Surgeons of the Society of Apothecaries of London; the Midland General Practitioners' Union, and the Incorporated Medical Practitioners' Association.

In conclusion, permit me to express my best thanks to those who have assisted me by their support at former elections and to say that if re-elected I shall continue to do my utmost to improve the conditions of medical practice and to uphold the honour and dignity of the profession, giving special attention to furthering the interests of those engaged in general practice. Thanking you for your courtesy in permitting me to address your readers through your valuable columns, I remain, your obedient servant,

Callington, Cornwall, Oct. 1st, 1906. GEORGE BROWN.

To the Editors of THE LANCET.

SIRS,—Nearly five years ago I was elected as one of the Direct Representatives on the General Medical Council by the vote of the registered practitioners of England and Wales. I now have to ask for a renewal of the confidence which was then reposed in me—which I trust I have not forfeited. The burning question at the time of the last election was the Midwives Bill. As it is well known, that

Bill has been placed on the statute book, but it does not appear to have answered the expectations of its supporters. It is very desirable that in any future legislation on this subject the necessity of providing for the payment of medical men called to the assistance of midwives should not be lost sight of. By its recommendations to the Privy Council the General Medical Council has helped this matter forward.

In conjunction with the other Direct Representatives I have urged on the Council the fairness of adding to the number of Direct Representatives, which might be done by representation to the Privy Council. This is becoming more and more desirable, as almost every session there is an additional representative added for some new university and so diminishing the relative voting power of the Direct Representatives, which has always been absurdly inadequate. Although the Direct Representatives are out-voted on every occasion when the interests of the universities and corporations are in danger, yet there is no doubt their influence has been felt, especially in those cases in which medical men have been brought before the Council who have sought to obtain unfair advantage over others by canvassing and advertising themselves. The Council cannot be made truly representative of the profession unless a new Medical Act is obtained which should, *inter alia*, very considerably increase the number of the Direct Representatives. This can be done without increasing the aggregate number of the members of the Council—viz., by grouping some of the universities and corporations and giving them alternative representation. It would only be fair in any fresh arrangement of the Council that the dentists, who contribute largely to its funds, should have adequate representation. More stringent clauses should be introduced to check illegal practices. Personally, I think that if the legal phraseology was adopted—viz., that no one should use any colourable pretence that he was qualified to practise medicine or surgery, it would cover a great deal. The finances of the Council are now on a more stable foundation owing to several small modifications as to fees for registration, also to an increased revenue from the property of the Council, and lastly, to the somewhat lessened time taken by the Council in doing its work. More and more work is done by the committees whose work does not loom so much in the eye of the public.

I may claim to have assisted in the work of the committee of the Diploma of Public Health and also of another important committee which was appointed at the instance of Sir John Williams to consider what improvements could be made in the training of medical students for their duties in connexion with midwifery. This committee has made important recommendations to the various medical schools which it is to be hoped will be carried out in the near future. If I am re-elected to the Council I hope to merit the confidence which the profession has hitherto reposed in me.—I am, Sirs, yours faithfully,

Oct. 2nd, 1906. GEO. JACKSON, F.R.C.S. Eng. (Exam.)

To the Editors of THE LANCET.

SIRS,—The election for three Direct Representatives for England and Wales to the General Medical Council takes place in November next. It is my intention in conjunction with Mr. George Brown and Mr. George Jackson, our present representatives, to offer myself for election. Four years ago I contested a seat on the General Medical Council against Sir Victor Horsley, and although I entered on the contest at the last moment and with no organised committee between 3000 and 4000 votes were recorded in my favour. This large poll encourages me to hope that I may be one of the successful candidates at the forthcoming contest. I am a general practitioner of 35 years' standing and I have taken an active part for many years in endeavouring to reform the Royal College of Surgeons and to obtain for the Members some voice in the management of the College. For 14 years I have been president of the Society of Members of the Royal College of Surgeons of England and am also an ex-president of the Incorporated Medical Practitioners' Association.

With regard to my views on medical politics generally, I am in entire agreement with Mr. Brown and Mr. Jackson. I may, however, state that I am strongly in favour of suppressing all clubs and medical aid societies which permit canvassing for members. I would also support an Act of Parliament for increasing the number of Direct Representatives and giving direct representation to the dental profession. As regards the medical curriculum, at present too much time is given to studying subjects of a theoretical character to the neglect of clinical and practical work.

I am, Sirs, yours faithfully,

JOSEPH SMITH, J.P., M.R.C.S. Eng., L.M., L.S.A. Lond., D.P.H. Camb.

Gunnersbury, W., Sept. 29th, 1906.

A REASONABLE PROTEST.

To the Editors of THE LANCET.

SIRS,—I venture to ask your advice in the following matter. On several occasions during the past few years I have had my attention directed to certain instrument makers' catalogues containing illustrations of anæsthetic apparatus purporting to have been devised by me but differing in important details from apparatus which I have designed. On one occasion, at the request of Messrs. Barth and Co., who have for many years manufactured apparatus for me, I wrote to one of these firms and the figures in question were removed from their catalogue. Quite recently, however, Messrs. Barth and Co. have again drawn my attention to a catalogue of an Edinburgh firm (herewith inclosed) in which, as you will see, my name prominently appears in connexion with several inhalers, some of which are different in principle to those which I advocate.

Two points present themselves. Firstly, to what extent are instrument makers whom the author or deviser of an instrument has never employed, and perhaps never heard of, justified in using that author's name without permission? and secondly, is it right that such manufacturers should supply the profession with apparatus copied, *and often very incorrectly copied*, from apparatus made by the particular firm originally selected by the deviser? I am inclined to think that the whole medical profession would be glad of some pronouncement from you upon these points. There must be many medical men who, like myself, have devised certain medical or surgical appliances who, after numerous experimental models have been made, either at their own expense or at the expense of the manufacturer, have published full details of their perfected appliances; and who are naturally anxious that if others should do them the honour of trying their instruments they should be supplied with faithful reproductions of the original. It seems to me that such medical men have a right to object to their names being associated with any apparatus or appliance which would not meet with their approval.

In the particular case which I have ventured to put before you not only has my name been freely used without my permission but several of the inhalers with which it is associated are actually constructed upon principles which I have condemned. Moreover, I am inclined to think that a great injustice is being done to Messrs. Barth and Co. who, over a period of several years and at their own expense, have made numerous experimental appliances for me before finally producing satisfactory models. Is it fair or right that another firm should endeavour to supply to the medical profession under cover of my name, used without my consent, apparatus which can only be described as an inaccurate imitation of the original, which original was approved by me? I should be very sorry to see any general movement in favour of medical men who design medical or surgical appliances having the smallest commercial interest in them, either by way of patent or otherwise. Nor do I altogether like the idea of the name of a medical man being associated with an apparatus patented by the manufacturer. Is there no way by which the respective interests of the profession at large, the medical man who designs an apparatus or appliance, and the original makers of such apparatus or appliance may be safeguarded?

I am, Sirs, yours faithfully,

London, Sept. 28th, 1906. FREDERIC HEWITT.

*** In the face of such a protest the manufacturers in question will, we are sure, remove the errors from their circular. A very interesting question to medical men has been started by Dr. Hewitt. His apparatus are made for him by a manufacturer selected by himself, who takes pains to reproduce the inventor's ideas, and who has spent money upon the mechanical perfecting of those ideas, the making of trial drawings, trial models, and so on. Such a manufacturer, who is a true coöperator, ought, Dr Hewitt thinks, to obtain some protection or monopoly in the sales.

Dr. Hewitt cannot, of course, patent the instruments himself, and we are sure it is quite unnecessary to say that he receives no pecuniary profit whatever by the sale of his instruments, and does not desire to do so; but he does desire that his instrument maker should receive the legitimate reward for his work. He is also anxious—and naturally, both as medical man and as scientific inventor—that the profession should not purchase under his name instruments only distantly resembling his apparatus. The employment of these instruments, from his point of view would be attended with risk, and he does not intend to be associated in the eyes of medical men with possible accidents.—ED. L.

OPERATIVE TREATMENT IN INSANITY.

To the Editors of THE LANCET.

SIRS,—I have already in several lectures and papers discussed many of the questions put forward by Dr. C. Mercier in his letter in THE LANCET of Sept. 22nd, p. 831, and perhaps Dr. Mercier may remember (for he was present) that at the meeting of the British Medical Association at Bournemouth I placed the question of the justifiability of trephining in general paralysis before the psychological branch, when, on the motion of the late Dr. Hack Tuke, it received the stamp of permissible approbation. What Dr. Mercier describes as a result of the operation—"a permanent gap in the brain-pan"—is a forcible way of stating what does not occur, at least in my experience. I have never seen such a "gap" as he imagines; indeed, the hole made by the trephine instrument is eventually firmly sealed and the patient is quite protected from liability to injury. As to what may be seen of the condition of the brain and membranes after the removal of the bone much of course depends upon the extent to which the operation is carried. I can only say that when the skull opening has been free, I have seen, especially after incision of the dura mater, conditions of membrane which were indicative of congestion, inflammation, and pressure, and, if necessary, corroborative evidence on this point could be given by the surgeons who actually performed the operations. As to Dr. Mercier's demand for "evidence of increased cranial pressure in insanity," there was certainly plenty of evidence in some of the cases operated upon, for when the bone was removed the parts of the brain and membranes rose up into the hole in the form of a tense tumour; indeed, I remember particularly that in one case there was no pulsation of the brain to be noticed until after the dura mater had been opened and the fluid had drained away, whereupon pulsation returned.

Mr. Harrison Cripps was so persuaded of the absolute presence of pressure in some (not all) of the cases upon which he operated that he proposed a large removal of bone and subsequent drainage by placing a tube between the cavity of the arachnoid and the outer skin, and that this mode of drainage was possible was proved by one case in which from a tube so placed drainage of cerebro-spinal fluid went on for a considerable number of hours. I have elsewhere given reasons for thinking that the timely removal of pressure would prevent the "swollen nerve cells and disintegration of fibres" of which Dr. Mercier speaks, and as to the preference to be given to lumbar puncture I would readily yield because the principle being allowed the operation is more simple and not so expensive, though lumbar puncture would not satisfy in every case the conditions for which I have urged the intervention of the surgeon. In a paper read a little time since before the Medico-Psychological Association I mentioned cases where there was reason to believe that the delusions were the result of hallucinations arising from disease or derangement of the sensory centres and early operation was discussed with the view of examining the particular centre involved and if possible of applying local remedies to it. It afterwards appeared that I had been anticipated in this recommendation by a prominent surgeon in Liverpool who, in one of the medical journals (I think), gave the result of his work. I have at this moment under observation a lady in whom the delusions which she exhibits appear distinctly traceable to hallucinations of hearing and the advisability of exposing the particular brain tract supposed to be involved is under consideration, there being many reasons for thinking that a primary lesion is to be found there.

Surgical operation in insanity is not likely to become general for several reasons; the friends of patients are opposed to what seems to them a formidable remedy, the services of an expert are required and the fees are large, whilst in the case of pauper patients the special surgical skill and the appliances are not always accessible, but that there are occasions when direct contact with the brain is the only true method of dealing with the disease has passed beyond the limit of speculation and is, I believe, a truth which may be accepted. I have seen not only relief and (probably) prolongation of life from the selected recourse to it, but I have seen, and have reported, cure due to the relief afforded by operation.

By your courtesy I am very glad to have this opportunity of replying in some measure to Dr. Mercier's very reasonable inquiries and also of bringing forward the discussion of a procedure which has been largely adopted in Germany and which is, I think, worthy of more consideration in this country than has been given hitherto to it. My object in writing an answer to "M.R.C.S." was not to provoke a discussion with Dr. Mercier but to point out the danger of tying the carotid artery and to explain the manner in which operation might be useful after the failure of other remedies. If "M.R.C.S." desires a detailed explanation of the *pros* and *cons* on the whole question of operation in insanity I beg to refer him to some of the chapters in my book "Ex Cathedra."

I am, Sirs, yours faithfully,

Harley-street, W., Sept. 25th, 1906. T. CLAYE SHAW.

THE FINANCIAL SIDE OF ARMY HOSPITALS.

To the Editors of THE LANCET.

SIRS,—The reforms of the last 30 years have placed the entire control of our military hospitals in the hands of the officers of the Army Medical Service. The whole responsibility for discipline, medical care, and stock-keeping is now rightly in their hands. One important factor in administrative efficiency is still in the background—I mean a full knowledge of the financial details of the hospitals by the medical officers. This financial side is sure to be fully inquired into in the near future and I desire to invite medical officers to study it thoroughly. In studying finance the cost of structural maintenance can be obtained from the Royal Engineers' Works Department. The pay of officers and staff is easily made out; the cost of rations and supplies comes from the Army Service Corps; the laundry charges—fuel, light, and water expenditure—are easily obtained; the medical department can supply the cost of medicines; charges for stationery would come from H.M. Stationery Office; and gardening charges from the Royal Engineers. The summing-up of these various groups would, I think, fairly cover the charges for maintenance of the institutions. I commend to the attention of all medical officers the forms printed by Waterlow and Sons, Limited, London Wall, London, obtained for a few pence, and made out to meet the demands of the Hospital Sunday Fund as to the expenses of hospitals in civil life. They show the various headings of expenditure and receipts, which latter in the army would be the hospital stoppages paid by the officers and men under treatment in the hospitals. No doubt an army form similar to Messrs. Waterlow's form should be issued officially and the cost per bed per annum formally shown. A just economy is the "conscience" of administration and by mastering the financial side of their responsible duties medical officers would be still more fully qualified on retirement from the army for the secretaryship of hospitals, an appointment to-day in the hands largely of amateurs, but awaiting the coming of the specialist. Until the medical officer knows still more accurately the cost of maintenance per bed per annum his complete knowledge of the institution in his charge will be defective.

A comparative table of cost of army hospitals in England, the colonies, and India should be easily forthcoming and would be interesting outside the confines of the army. The cost per bed of naval hospitals should also be easily obtainable. Even the cost of the Sepoy hospitals in India, so primitive and undeveloped, would be worth inquiring into. They would gain, I have no doubt, first prize for actual cheapness, but cheapness *per se* is not to be desired, it is "cheapness with efficiency." The "stoppage" system of the army is sure in the near future to become the model on which municipal hospitals will recover from patients the cost of their maintenance. When

we remember that even up to 1813 the sick of the Coldstream Guards in London were treated individually in their lodgings or rooms and that only in that year was a regimental hospital opened for them we can see what 100 years has done in official hospital evolution. I foresee a very rapid development of the official hospital system in civil life and every contribution to its being more fully understood is to be welcomed. The Army Medical Service, which was the pioneer in producing the all-round medical man who combined the surgeon and the physician in one person and broke down the barriers of sectionalism, is also worth studying in its pioneer work of medical control of medical institutions.

I am, Sirs, yours faithfully,

GEORGE J. H. EVATT,
Surgeon-General.

Junior United Service Club, London, Sept. 29th, 1906.

SPIROCHÆTÆ IN MICE.

To the Editors of THE LANCET.

SIRS,—My attention has been drawn to a short note on a spirochæta of the mouse by Breinl and Kinghorn of the Liverpool School of Tropical Medicine in THE LANCET of Sept. 8th. This spirochæta is undoubtedly one with which I have been working for some months, since I discovered it in a mouse infected with trypanosoma dimorphon at the Pasteur Institute in March last. I mentioned my discovery to a member of the Liverpool School of Tropical Medicine who was on a visit to the institute. About that time trypanosoma dimorphon was required for work at the Liverpool School of Tropical Medicine and application was made for it to the Pasteur Institute. As I was working there with trypanosoma dimorphon, and had the only strain at the institute, I was asked for an infected mouse. This mouse I afterwards learnt had been sent to Liverpool. It was infected with both trypanosoma dimorphon and the spirochæta, as was the case with all my mice. It was in this mouse that Breinl and Kinghorn found the spirochæta they describe, though they did not know the mouse had come from me. Speaking with Dr. Leiper, who was about to go to Liverpool in August, I asked him to mention the matter of my spirochæta at the Liverpool School of Tropical Medicine, in order to avoid mistake. Dr. Leiper now tells me that the matter was brought up by the member of the school I had met in Paris, and that he (Dr. Leiper) said that my paper was about to go, or had already gone, to press, and that I had determined the spirochæta a new species. As a matter of fact, my paper is appearing in the *Journal of Hygiene*. But for the fact that the subject had been mentioned twice to a member of the Liverpool School of Tropical Medicine I would have published a short note earlier than this, but I considered it unnecessary, concluding that if the spirochæta were discovered in my mouse in Liverpool the fact of my work being known by one of the workers there would have prevented the unfortunate mistake that has occurred. In my paper I have given the name spirochæta muris (*n. sp.*), while Breinl and Kinghorn have anticipated me with the name spirochæta Laverani (*n. sp.*). To me it seems strange that a new spirochæta should have been discovered at the Liverpool School of Tropical Medicine without the fact of my discovery being mentioned when it was known to one of the workers there. It is not usual for an observation of that nature to be made without at least those on the spot hearing of and discussing it.

I am, Sirs, yours faithfully,

Zoological Institute, Munich, Oct. 1st, 1906. C. M. WENYON.

PNEUMONIA IN ALCOHOLIC SUBJECTS.

To the Editors of THE LANCET.

SIRS,—In the *Daily Telegraph* of Sept. 27th the following report appears:—

CORONERS' POWERS.

Mr. John Troutbeck, sitting at Lambeth, inquired into the death of John Dawes, aged 42, a cab-driver, lately residing in Clayton-street, Kennington Oval. Horace Booley, deceased's landlord, said the man had been a teetotaler for four years but broke out a fortnight before his death. He took to his bed on Friday and witness called in a doctor, who said he was seriously ill and prescribed for him. Death took place on Sunday morning. Witness asked for a certificate but the doctor refused to give one, assigning no reason. He had been paid for attending the patient. The coroner said no doubt the jury were aware that when everything was straightforward it was the duty of a doctor to certify a death and they must assume that the medical man in this case did not feel justified in giving one as he referred the case to the coroner. He, however, subsequently refused to give his officer any information whatever and there was no legal obligation on him to do so but he refused even to say what he had attended the man for. Thus he was standing strictly on his legal rights. In the present state of the law a coroner could not call upon a doctor to give him information, as he could not pay him for it, and it was a very undesirable position. This was one of the great reforms in the laws relating to death certification which was urgently needed—that a coroner should be able to ask for a report and pay for it. Dr. Freyberger said death was due to heart failure accelerated by alcoholic pneumonia. There would be no difficulty in diagnosing such a case.

In the expression of opinion that "there would be no difficulty in diagnosing" a case of "alcoholic pneumonia" Dr. Freyberger joins issue with no less an authority than Professor Osler, Regius Professor of medicine at Oxford, as the latter writes:—

Pneumonia in alcoholic subjects.—The onset is insidious, the symptoms masked, the fever slight, and the clinical picture usually that of the delirium tremens. The thermometer alone may indicate the presence of an acute disease. Often the local condition is overlooked as the patient makes no complaint of pain, and there may be very little shortness of breath, no cough, and no sputum. (The Principles and Practice of Medicine, by William Osler, M.D., F.R.S., F.R.C.P., sixth edition, p. 183.)

It would appear from the newspaper report that the medical man called in to see the case only saw the patient once. When seen the deceased may have appeared to be suffering from delirium tremens the result of the drinking bout referred to in the report and may have presented no symptoms pointing to pneumonia. The medical man may therefore have been surprised to hear of his death and was apparently quite justified in refusing a death certificate. Dr. Freyberger, if correctly reported, appears in making his statement to have overlooked the fact that it is one thing to make a diagnosis at the bedside and another to do so in the post-mortem room.

I am, Sirs, yours faithfully,

R. J. BLACKHAM, D.P.H. R.C.P.S. Lond.,
Captain, Royal Army Medical Corps.

Devonport, Sept. 29th, 1906.

*** We refer in another column to this case under the heading of "Medicine and the Law."—ED. L.

GOAT'S MILK FOR INFANTS.

To the Editors of THE LANCET.

SIRS,—My personal experience of the use of goat's milk as a food for infants is perhaps worthy of record. Some 12 years ago, having the opportunity of utilising a healthy young goat which had recently kidded, I kept a baby upon goat's milk during the first eight months of its life. The infant was three weeks old when (its natural food having then failed) I put it upon the goat's milk. This was given at first with an equal quantity of water and proved so easily digested that the dilution was rapidly reduced and the milk was given undiluted after a few weeks. The child was fed exclusively upon goat's milk for six months and a half—i.e., until it was over seven months old. Throughout this period the growth of the child was satisfactory, its general condition was very good, and it remained entirely free from those digestive troubles which so commonly plague the bottle-fed baby.

It is surprising that at this day, and in spite of the educational work carried on for so many years by the British Goat Society and others, there should be any hesitation in admitting the superiority of goat's milk over cow's milk as a food for infants. The milk is primarily more digestible because its casein forms only a flocculent curd and the infant does not suffer from the tendency to accumulation of hard cheesy masses, as with cow's milk. The goat is singularly resistant to tuberculosis, an important consideration in view of the very wide dissemination of tubercle among dairy cattle. The nourishing power of the milk of the goat is just as high as that of the milk of the cow and it is quite efficient as the sole food of an infant up to the age of from six to eight months. The sole objection to the employment of goat's milk is the difficulty and expense usually entailed in obtaining it from a reliable source at the moment when its use would be of value. It is not the case that there is any unpleasant or peculiar smell or taste attached to goat's milk, provided that the goat is kept under cleanly conditions and apart from any association with

the male of its species. It is, I believe, a fact that when the he-goat is allowed to run with a herd the females acquire, for the time, something of the characteristic smell of the male and that their milk becomes similarly affected. In the case to which I have referred above there was never any peculiarity of smell or taste about the milk employed and it was willingly consumed by others besides the baby. I have found asses' milk a very excellent food for delicate infants during the first few weeks. Owing, however, to its poverty in cream this milk cannot safely be used as sole nourishment after the first two or three months of life.

I am, Sirs, yours faithfully,

Seville-street, S.W., Oct. 2nd, 1906. JOHN CAHILL.

THE CORRECTION OF DEATH-RATES.

To the Editors of THE LANCET.

SIRS,—In continuance of my note on this subject in your issue of August 25th, I should perhaps more clearly explain that the essence of my proposal is to take a "Standard Million" (or, at any rate, a miniature of this standard) and to apply the local rates at the several age periods in order to obtain the corrected death-rate for a town or district. This system avoids the errors arising from differences in age and sex constitution. It is a better standard to work upon than the average death-rate of the country for ten years, because amongst other things it is applicable to countries where the census figures may be fairly accurate while the death registration of the country taken as a whole is very defective. The comparative mortality figure is obtained by applying local rates (at the several age periods) to the standard million without further correction, and a local general rate is thus found which is readily comparable with others similarly calculated or with that for the country at large. In all cases it is obvious that crude death-rates must be partially corrected for deaths occurring in, or belonging to, other districts.

I have previously shown that the usual method applied to the city of Calcutta for the year 1904 gave a corrected death-rate of 36·6 as against the recorded rate of 32·2, while the "population standard" further corrects this and makes the rate 38·7 per 1000. It is fairly obvious that the mere numbers of persons at the several age periods should not be allowed to determine the corrected general rate for a town or district. What we want is the rates at the several age periods and it matters nothing how many persons belong to a particular age group. The differences in the death-rates at the several age periods and in the two sexes will alone determine the result, and we shall not obtain a low general rate with a high death-rate at nearly all ages as was found for Calcutta in 1904. A standard million is applicable as a basis for comparison even if the components of a population depart very considerably from it, because we are dealing with rates at age periods and not with the varying numbers of the population at the several age groups I would go even further and say that it is possible to adopt an artificial million as a standard which would be applicable for the comparison of death-rates all over the world. We merely require a standard population and we can apply the local rates and obtain our correction accordingly.—I am, Sirs, yours faithfully,

T. FREDERICK PEARSE, F.R.C.S. Eng., M.R.C.P. Lond., D.P.H. Camb.,
Acting Health Officer of Calcutta.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—You have lately opened your columns to a discussion of the question "What is a Specialist?" It seems to me there is room also for a recognised definition of the term "consultant." I have always understood that one, if not the main, distinguishing characteristic of the consultant was that he did not treat patients at their own homes, and did not even visit them there except in conjunction with a medical man in charge of the case, or unless an arrangement had been made with the latter *for each visit* of the consultant. I certainly should not apply the title to one whose practice differed materially from that above indicated. Am I unduly restrictive? I am, Sirs, yours faithfully,

London, Oct. 2nd, 1906. STICKLER.

THE MILAN INTERNATIONAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Milan, Sept. 27th.

Now that the weather is becoming somewhat cooler, this is the most favourable moment for the inhabitants of Northern Europe to visit the Milan Exhibition. A pretext for a journey to Italy must ever be welcome to the lovers of nature, art, archæology, and history. Nor can the man of science fail to be interested in such ancient seats of learning as those which abound in Italy. But this year there is the extra attraction of the Milan Exhibition. The object of the exhibition is to celebrate the piercing of the Simplon and the opening of this new railroad through the Alps. Thus at the principal entrance of the exhibition there is a reproduction of the entrance of the tunnel and within there is a very exact imitation of the rocks and the work of piercing a way through the mountain. Here can be seen not only the way in which the scaffolding was built to hold up the rock and to prevent fragments from falling but also the system of pumping air into the tunnel is shown in full working order. As a natural sequence, to celebrate this great undertaking means of intercommunication form the chief feature of the exhibition. Then, not to lose the historical sequence, there is a retrospective exhibit beginning with old papyri, showing how the ancient Egyptians rowed in boats and drove in chariots. Then follow models of Roman galleys, of the ships with which Columbus discovered America, down to the more modern diligences, and finally, the carriage which was built for General Virginio Bordino in 1836. The carriage has the ordinary coachman's seat and the means of harnessing two or more horses. Behind the rumble is of unusual size; it is painted to look like basket work. But for the protrusion of a funnel some three feet high it might be considered as a convenience for carrying a large quantity of luggage. It is only on closer examination that the visitor perceives that the rumble holds a steam-engine. Thus we find a carriage where horses and steam are employed simultaneously and this truly typifies the period of transition. The corporation of London and the British Institute of Engineers also have sent interesting objects showing the transition between stage coaches and railways. But, and however interesting this may be, the vast exhibits of the modern methods of travel is of greater practical purpose. These will be found in the other part of the exhibition, for the exhibition is divided in two halves which are situated at some considerable distance one from the other.

The first and more picturesque half is near the centre of the town in the park immediately behind the Castello Sforzesco, from which fortress and palace the Milanese have been governed, and frequently tyrannised, since the fourteenth century. This is known as the exhibition *del Parco*. The other half is that of the Piazza d'Armi and is much farther off but electric tramcars go to both places for the modest charge of 1*d*. It is at the Piazza d'Armi that the technician will find more to study. On leaving the tramcar and penetrating by the nearest and very unpretentious entrance I found immediately to my left the vast exhibits of the Italian Touring Club. There is a large saloon with diagrams on the walls giving statistics which show the extension of the action of this association and the numbers of tours made under its auspices. The beneficent influence thus exercised is well exemplified by the adjoining exhibits of hotel furniture. Not only is the old germ-retaining style of furniture, of curtains, carpets, stuffed chairs, and wooden beds utterly abjured but in some cases these are exclusively of metal. Sheets of metal, painted and enamelled, constitute the sides of cupboards and metal tubing the legs of chairs and tables. This must be cold and hard and seems somewhat of an exaggeration. But the wood that is used should be, and very generally is, rendered non-porous and so glazed or enamelled as to be washed without injury. The Touring Club in Italy and in France, by refusing to recommend hotels that do not abolish the old methods of furnishing rooms where every facility was offered for the retention and

culture of such germs as those of tuberculosis, has undoubtedly rendered great service and reduced the risk which travellers incur when they frequent hotels.

Close to the Touring Club an oblong building is devoted to French decorative arts, and at one of its extremities there are the ever-interesting exhibits of the city of Paris. These I have described on many previous occasions, notably last year at the Liége international exhibition, where I think they were better arranged and more numerous. Here there is a central saloon with a table holding commemorative medals of notable events in the civic history of Paris—the opening of the great central markets or *halles*, of the councils of arbitration or *prud'hommes*, the organisation of poor relief and the employment of balloons in the defence of Paris during the great siege of 1870. Around are the work, sometimes fine art work, of the technical schools, statistics as to the increase of the ambulance services, and great books of reference and albums of photographs showing the notable public works that have been undertaken and how the different services, including those of the hospitals, are carried out.

A square building in the centre of the piazza is devoted to the marine exhibits and on entering Krupp guns of colossal dimensions proclaim Germany's determination to become a naval power. But what was more to my purpose there is a life-size reproduction of a hospital on board a German man-of-war. Here there are a dispensary and operating cabin and the ward where the patients are placed in bunks suspended by chains. These bunks would sway from side to side, so that the patients would not feel the rolling of the ship but they would still be affected by the pitching. Then there are a bathroom, the douche arrangements, and lavatories. In this manner some idea can be obtained of the sanitary arrangements on board a German man-of-war. The mercantile navy has also a great display. For instance, the Norddeutscher Lloyd give a large model of their landing-stage at Hoboken, New York, and models of their most celebrated ships. Finally, there is a picture of the *Kaiser Wilhelm II.* deposited across the top of the piazza in front of the Milan Cathedral showing that it is longer than the square is broad.

The Italian Navy has likewise constructed a life-sized reproduction of an operating room on board an Italian man-of-war. The bunks, suspended by chains to the deck above, also swing to save the patient from the rolling of the ship. There are numerous photographs on the wall illustrating how operations can be done in these cabins and there is a disinfecting stove placed close to an isolation ward between decks. In the latter the bunks are hung in the middle of the cabin and do not touch the sides. All the surfaces are non-absorbent and washable. This isolation ward or cabin is well worth seeing and indicates a real understanding of what is necessary. The Italians have also some ship's furniture made with asbestos cardboard that can easily be cleaned and is incombustible. Also there are operating chairs on wheels that could be taken to a patient on deck instead of carrying the sufferer to the operation cabin. Fittings and poles are likewise at hand by which an ordinary deck chair can be converted into a portable stretcher. But the most ingenious devices of this description are those shown by the Japanese navy. Canvas mainly is employed and the idea is so to envelop the patient that he can be suspended by a rope and let down into the ship like a bale of goods. There is one piece of canvas, stiffened by split bamboo, that would fold over a man and keep him absolutely stiff and straight, and he could then be let down in any manner to the decks below.

In the face of these very graphic and instructive exhibits it is a pity that in the British section there is little else shown than models of ships exactly similar to those that can be seen any day in the windows of the shipping offices in Trafalgar-square and Cockspur-street. The Navigazione Generale Italiana, for instance, has a separate building all to itself. On entering there are the usual models of ships and maps indicating the routes which they follow. But there is a life-sized model of the most important portion of the *Re Vittorio*, one of its largest Atlantic passenger ships. Visitors ascend on the bridge deck and penetrate the music room where the tapestry furniture is of gold and white, Louis XV. style, and in every respect fit for a royal palace. The dining-saloon can also be seen and some of the state cabins. But it is likewise possible to see the bath rooms and the closets and thus to study the sanitation of these luxuriously furnished and artistically decorated ships. Finally, there is the Marconi wireless telegraph cabin where news is received even in mid-ocean. Short of actually going to sea it is impossible to imagine a more realistic representation of the accommodation afforded to passengers on these ships.

Next to this building is another structure devoted to automobiles, while behind it a reproduction of ancient Flemish architecture contains Belgian exhibits ranging from old tapestry to modern diamond cutting. Then there is a very fine model of the port of Antwerp which, however, I have already seen at one or two exhibitions. A point of interest for those who are striving in England to find work for the unemployed by reclaiming land is the exhibit of what is done in Belgium to consolidate, by planting, the sandy dunes on the sea-shore and for the reclaiming of marsh land. Outside there is a beautiful Belgian garden with a temperance bar. As usual, there is nothing worth drinking at this bar and it is left in strict solitude by the passing crowds of visitors. When will the temperance party understand that their first care should be devoted to providing such light refreshments as will be agreeable and attractive, even though they do not contain alcohol? This bar seems to have been erected to discredit the cause of total abstinence from alcohol.

Close by there is a pavilion of exhibits showing the large part played by the Italian races in colonising different countries of the world. This comprises photographs of public works executed, and institutions founded, by Italians abroad, whether it be in Russia, in different parts of Europe, or in America. Among these is the Italian Hospital in Queen-square, London. Then I noted models of the out-of-doors Italian schools in the canton of Ticino and details relating to the organisation of help for distressed or sick Italians in all parts of the world. The visitor wanders from building to building, for there is no one great, general, dominating structure. The largest place is that which has the less architectural pretension. It is, in fact, but a vast expanse of roofing which covers locomotive engines and railway carriages of different countries and companies. The next largest building is that where various industries, notably printing, are carried on in full view of the visitors. Another block contains agricultural exhibits, another the products of the South American Republics and so forth. One of these separate buildings is devoted to hygiene and another is entitled "*Ministero Interno: Santa Pubblica.*" These deserve to be described in detail.

(To be continued.)

LONDON FIRE BRIGADE.—Another handy motor fire appliance has just been put into service in the London fire brigade. The machine, which has been specially constructed to meet the requirements of Captain Hamilton, the chief officer, is of Merryweather's latest type and is fitted with a 30 horse power four-cylinder motor. It comprises a hose tender and reel, carrying about 1200 feet of hose for use with street hydrants, a full set of gear, a telescopic ladder, and a pair of hook ladders for life-saving. The machine will carry eight men, can turn out instantly on an alarm, and keep up an average speed of 20 miles per hour.

FIFESHIRE MEDICAL ASSOCIATION.—The twenty-fifth annual general meeting of the Fifeshire Medical Association was held at Cupar on Sept. 28th, Dr. Norman Walker, Edinburgh, the President, being in the chair. The principal item on the programme was an address by Dr. W. Osler, Regius Professor of Medicine in the University of Oxford. The subject dealt with was pneumonia, which, he said, still remained resistant to the best efforts which had been made against it. He exhibited a number of charts, showing among other things, how the disease was affected by seasonal changes. December, January, February, and March were the months in which it occurred with the greatest frequency, and from careful statistics supplied to him it appeared that in all large hospitals and institutions the mortality ranked as high as from 25 to 30 per cent. He spoke of the difficulty of obtaining definite information about the pneumococcus as it was a germ that did not "play the game" like other germs and did not bear a reputable character and he earnestly urged medical practitioners to give to each other the benefits of their experience in dealing with it. The present methods were loose and haphazard; but just as typhoid fever had been successfully fought and tuberculosis was diminishing, so he believed many in the room would live to see pneumonia cured and prevented.

A VISIT TO PROFESSOR CZERNY'S CANCER INSTITUTE.

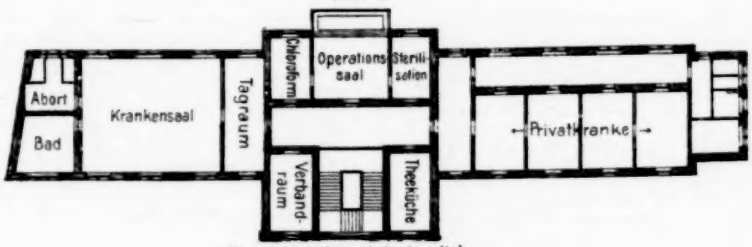
(BY A SPECIAL CORRESPONDENT.)

Professor Vincent Czerny, whose name is well known to all surgeons through his work on intestinal, vaginal, and plastic surgery, after holding the post of professor of surgery in the University of Heidelberg for many years, has resigned his post and is giving effect to an old resolution to devote the remainder of his life to the study of cancer. He vacated his professorial chair on Oct. 1st to become director of the New Cancer Institute (Samariterhaus) at Heidelberg where the hospital and laboratories for cancer research are closely connected. The institution is well worth a visit. Professor Czerny has not only carefully worked out every detail of its construction and furnishing, basing the details upon his great experience of the clinical aspect of cancer and upon his wide knowledge of the experimental and scientific side of surgery, but he has most generously contributed to the pecuniary resources of the institute and so helped in a practical way to perfect its equipment. On Monday, Sept. 24th, the day before the opening of the meeting of the First International Congress for the Study of Cancer, Professor Czerny, accompanied by his colleagues, conducted a party of visitors around the institution, which consists of a hospital and a block for experimental research, and carefully explained the details of its construction and arrangement to them. Among this party were Professor Leyden (Berlin), Dr. J. Barker (San Francisco), Dr. Bainbridge (New York), Dr. E. F. Bashford, director of the Laboratory of the Cancer Research Fund, London, Dr. W. S. Lazarus-Barlow, director of the Cancer Research Laboratory of the Middlesex Hospital,

FIG. 1.

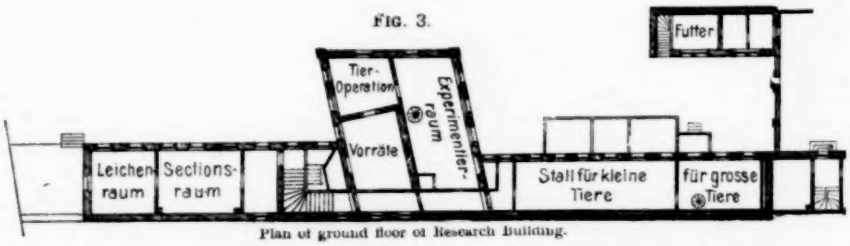
Façade of Hospital.

FIG. 2.



Plan of first floor of the hospital.

FIG. 3.



Plan of ground floor of Research Building.

and Dr. A. Paine, Dr. D. J. Morgan, Mr. F. B. Jessett, Mr. E. C. Ryall, Mr. Cecil Leaf, Mr. W. E. Miles, Mr. R. H. J. Swan, and Mr. J. Howell Evans of the staff of the London Cancer Hospital.

The hospital is thoroughly well arranged. The department for histological and pathological investigation is in the same building as that in which the clinical and operative work will be carried on. (Figs. 2 and 3.) The building proper consists of a west and an east wing on either side of a central block. The west wing is occupied partly by the free patients and contains also accommodation for some of the administrative arrangements. The east wing is set apart for the director's private rooms, the pathological laboratory, and the paying patients of the first and second class, who pay respectively 8*s.* 6*d.* and 6*s.* 6*d.* per diem. Every detail of construction has been carefully considered from the point of view of the comfort of the patient, of his treatment in accordance with modern methods, and of the durability of the fabric. In the basement there have been installed Roentgen ray apparatus and its accessories. The total cost per annum of the management of the hospital, it is estimated, will be £7000, or, roughly speaking, £150 per bed.

FIG. 4.

Professor Vincent Czerny.

Adjoining the hospital, and running back at right angles from the west wing, is the large building set aside for experimental research. The work here is divided into two sections: (1) the section of experimental zoology, under the supervision of Professor von Dungern; and (2) the section of experimental investigations among the protozoa, under the supervision of Professor von Wassilewski.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Opening of the University Medical Department.

IT is the custom in Birmingham to open the winter session in the medical department by holding a conversazione to which the medical men and dentists of the city and district and the past and present students are invited. The custom was followed on Thursday last with great success, for in spite of the inclement weather, which unfortunately broke upon us at a most inconvenient time, about 500 people took the opportunity to view the new pathological department and the numerous excellent exhibits which were displayed both in that and in other sections of the medical buildings. Expressions of pleasure and appreciation were heard in all directions but admiration and enjoyment of the scientific displays did not prevent the majority of the guests being present either at one or both of the two delightful concerts in which Mr. Dalton Baker and Mr. G. H. Manton took part. The guests were received by Professor H. Gilbert Barling (the dean), Professor Arthur Robinson (the sub-dean), Professor A. H. Carter, and Mr. John Humphreys (honorary secretary of the dental department) in the Founders' Room of the University Club. They then passed either into other parts of the fine club buildings or through the short corridor of connexion into the medical school buildings, where the scientific preparations, specimens, and instruments were on view and where the concert was given in the large theatre. I understand that there is every prospect of an excellent session and the number of entries of new students on the first day alone exceeded the total entries of last year. This is very satisfactory, for the school is thoroughly equipped, the hospitals have abundance of cases, and opportunities and facilities are offered for a very large number of students.

Health of the City.

The epidemic of diarrhœa associated with the recent hot weather is dying down and the death-rate has fallen in the past three weeks from 25·9 per 1000 to 17 per 1000. The zymotic death-rate is gradually decreasing to the low point which we usually associate with our normal condition and there can be little doubt that with the cooler weather of autumn we shall again attain to the low death-rate to which we have been accustomed for a considerable time. Our health authorities may congratulate themselves on having passed through the critical time of the last few weeks with better results than could possibly have been hoped for a few years ago but they are still not satisfied and they have every reason to believe that their vigorous efforts, aided by those of the housing committee, will be productive of much better results in the future. One of the most baffling diseases with which they have to contend is pulmonary tuberculosis but even with regard to that the outlook is getting brighter. The system of voluntary notification is working well and the medical officer of health is urging that a sanatorium should be established in which members of the working classes could be regularly treated in the most approved manner. Probably, however, the best results would be obtained if compulsory notification of early cases was insisted upon and if school children were regularly examined and those inclined to any form of tuberculosis were weeded out and specially treated as Dr. Lyster suggested in the lecture which he delivered a short time ago at the Midland Institute.

Diminution of Infantile Mortality at Walsall.

It is very satisfactory to note in a recent report of the medical officer of Walsall (Dr. J. S. Wilson) that the deaths of children from epidemic diarrhœa have fallen to 48 in a given period as contrasted with 79 in a similar period of last year, and it is still more satisfactory to know that Dr. Wilson attributes this decrease to the special attention which had been paid by the sanitary inspectors to the courts of the town. It is to be hoped that similar increased attention will be paid to the courts of other towns, for the loss of infant life is still far too great in our district, although it has diminished very considerably of late years.

The Water-supply.

It is in dry periods such as that through which we have passed that the wisdom of our local authorities who insisted upon securing a satisfactory source of water-supply in Wales is most appreciated. The grumbling over the cost of the scheme, which was both loud and long, must surely cease when the grumblers see how great are the advantages which

our district enjoys in a time of drought which has caused, and is causing, serious trouble to other less fortunate areas. In spite of the dry weather the supply of water in our reservoirs remains satisfactory and indeed it is really better than last year, whilst we are assured that the supply would not have been interfered with had the drought continued for a further period of three months. We have grown so accustomed to a good and plentiful supply of water that it is doubtful if those who grumble at the cost really understand all that a good supply means in association with health and comfort, and though they might be prepared to sacrifice some comfort for less expenditure still it is not probable that they would be willing to sacrifice the lives which would necessarily be lost if we suffered from any shortage of water. A good and plentiful supply of water has much to do with the reduction of the death-rate and very few would care to let cost stand in the way of that reduction. The difficulty, however, lies in making many people understand the close association between good and sufficient water-supply and health.

Open Spaces for the City.

It was only in June last that the Open Spaces Association was definitely formed and already it has offered to the corporation four pieces of ground. Two of the spaces have been given to the association, one, about half an acre in extent, in Coventry-street, by Sir Thomas Gooch, and the other, about five acres, in Somerville-road, Small Heath, by Mr. C. W. Digby. The third space has been purchased by the association and it is now negotiating the purchase of the fourth. The total value of the land at the present moment is about £8000 and it is offered to the corporation for use as open spaces and playgrounds. This is a most valuable offer, for which the donors deserve the thanks of the city, and it is to be hoped that the baths and park committee will see its way to recommend to the council the acceptance of the offer and the fencing and maintenance of the spaces. The cost to the city cannot be large and the gain of permanent air spaces is incalculably great. The action of Sir Thomas Gooch and Mr. Digby is an example to other landowners and the spaces which they have offered will remain as permanent records, much more useful than any monuments, of a public spirit which deserves emulation.

Retirement of Dr. J. D. Scurrah.

For 32 years Dr. Scurrah has been honorary surgeon of the Edgbaston General Institution for the Blind. He has now decided to retire from the active work and the committee of the institution in accepting his resignation expressed its regret at his retirement and its high appreciation of the very excellent work which he had done. The committee also expressed the hope that Dr. Scurrah would accept the office of honorary consulting surgeon and that in that capacity he would still continue his connexion with the institution for many years.

Oct. 2nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Civic Luncheon to Professor Ronald Ross, Professor Rubert W. Boyce, and Dr. J. L. Todd.

A COMPLIMENTARY luncheon to Professor Ronald Ross, C.B., F.R.S., Professor Rubert W. Boyce, F.R.S., and Dr. J. L. Todd, all of the Liverpool School of Tropical Medicine (in recognition of the decorations recently conferred on them by the King of the Belgians for services in research into tropical diseases at the Liverpool School of Tropical Medicine), was given by the Lord Mayor of Liverpool, at the town hall, on Oct. 1st. Amongst the guests were Viscount Mountmorres, Sir Alfred Jones, K.C.M.G., the Lord Provost of Edinburgh, Sir James Barr, and others. After the loyal toasts had been honoured the Lord Mayor proposed the health of "Our Guests." He said that he had asked those three gentlemen to accept the hospitality of the town hall because he considered that honour should be paid to those to whom honour was due. Under the auspices of the Liverpool School of Tropical Medicine Professor Ross, Professor Boyce, and Dr. Todd had undertaken the investigation of sleeping sickness, towards which work the King of the Belgians contributed a sum of £4000. Having been satisfied with the work which was so effectively done and of such great value His Majesty conferred upon each of those gentlemen a decoration of a personal character. He was sorry that Professor Boyce was absent owing to illness. He had hoped to have attended this complimentary luncheon but he was unable to travel from Harrogate. The Liverpool Tropical School had only been in operation since 1899 and by 1905 £48 200 had been expended. Never was money more profitably spent than this sum. Sixteen expeditions had been sent out to the tropics. About 900 cases of various tropical diseases had been treated at the special ward in the Royal Southern Hospital. They were honoured with the presence of the Belgian Consul and through him he begged to assure His Majesty the King of the Belgians of Liverpool's warm appreciation of his gracious act. Sir Alfred Jones, in cordially seconding the toast, read a translation of a letter from the Secretary-General, Congo Free State, dated Brussels, Sept. 28th. It stated: "You made reference to the fact that if His Majesty Leopold II. would consent to make an annual subscription of £1000 for a period of five years, the Liverpool School of Tropical Medicine would be relieved of pecuniary difficulties. I have the honour to inform you that His Majesty the King, responding to this appeal, has authorised me to place at your disposal a sum of £1000. We hope that this subscription will not be the last which might be made to the institute." Professor Ross had just received the honorary degree of doctor of law at the University of Aberdeen, while in 1902 he was awarded the Nobel prize for his discoveries in malaria. Dr. Todd had participated in several very important expeditions of the Liverpool school and had been identified with the late Dr. Dutton in carrying out the extensive study of sleeping sickness. Professor Boyce was the dean of the Tropical School of Medicine. A letter was read from him stating that the honour to himself and his colleagues was really paid to the Liverpool School of Tropical Medicine. Professor Ross, in response, remarked that he had been previously honoured at the town hall during the mayoralty of Mr. W. W. Rutherford, M.P. He should not only like to see all tropical diseases banished but likewise all preventable diseases at home, such as measles, scarlet fever, and chickenpox. He believed that by the discovery of the causes such diseases could all be wiped out. Dr. Todd also acknowledged the toast, and drew attention to the proposed memorial to the late Dr. Dutton who had left such a glorious example of self-sacrifice. The Belgian Consul expressed, in the name of King Leopold, his congratulations on the success of the Liverpool School of Tropical Medicine which was known all over the world.

The Infirmary for Children.

The funds necessary for the completion of the new infirmary for children are being gradually accumulated. In response to repeated appeals from the committee £5450 have already been subscribed towards the requisite £6000; a sum of £550 is still required before the city council will make its promised grant which is conditional on the balance being raised by the public. There ought to be no difficulty now in raising the required amount.

Death from Anthrax in Liverpool.

The deputy coroner conducted an inquiry on Sept. 27th into the circumstances attending the death of a farm labourer at Norley Farm, near Warrington. The evidence disclosed an extraordinary case of anthrax. It appeared that the deceased and another farm labourer went to bring in some cattle on Sept. 11th. Suddenly one of the bullocks became unwell and as it was impossible to move it to the farm the beast was slaughtered and then dressed by a local butcher. The next day the carcass was despatched to the Manchester meat market where it was seized by the inspectors who found traces of anthrax. It was at once destroyed and at the farm everything that had come in contact with the infected animal was disinfected. Meanwhile the deceased and his companion had developed swellings on their arms and in accordance with medical advice were conveyed to the Liverpool Royal Infirmary. The deceased became rapidly worse and died on Sept. 25th. The medical evidence was to the effect that death was due to anthrax. The jury returned a verdict in accordance with the medical evidence, adding that in their opinion sufficient care had not been taken in the disposal of the carcass. They considered that some action ought to be taken in the matter and that the head constable of the county should be communicated with.

Oct. 2nd.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Police Surgeons in Cardiff.

DURING the past few years there have been three police surgeons in Cardiff, each one having allotted to him a separate police division. The chief constable has now advised that there should be a fourth surgeon appointed who should act as chief surgeon and include in his duties the examination of all recruits for the constabulary force and fire brigade, the examination and reporting upon officers and constables recommended for temporary pensions in case of incapacity, delivering of first-aid lectures, and the giving a second opinion when required in the case of death in suspicious circumstances. The watch committee has decided to carry out the suggestions of the chief constable, except that one of the divisional surgeons will be appointed chief and hold the divisional appointment at the same time. It is to be regretted that the committee also assented to a proposal of the chief constable that the surgeons should be appointed year by year and not as at present without reference to time but dismissable at three months' notice. A medical member of the watch committee protested very strongly against this insecurity of tenure of office and it certainly ought not to be permitted unless very good reasons are given for doing so. It would be interesting to know whether the chief constable himself would feel happy and comfortable in his work if he came up for re-election annually.

Deaths of Children from Overlying.

The Swansea coroner was quite justified in the remarks he made at an inquest recently held in Swansea upon a child four months old who was found dead in bed on a Sunday morning. The same bed was occupied by the child's father, mother, and another child, and the medical man who was called to see the infant's body said that the left side of the face was much discoloured, the tongue protruded, and the hands were clenched. There was no doubt that the infant had died from suffocation. The coroner's farewell words to the mother were: "You can go home and tell the neighbours in your street that you suffocated your own child through your own carelessness."

Swansea Refuse Destructor.

The sanitary authorities in South Wales have not been so eager as those in the North of England to get rid of household refuse by burning. Up to the present time there are only three destructors in South Wales—one in Barry, one in the Rhondda, and the third in Swansea. That in Swansea has now been in operation for two years and a recent report of the borough surveyor states that it has been doing its work well without the slightest nuisance being caused. An average of 57 tons of refuse is dealt with daily and the cost per ton, excluding capital charges, is just under 2*s*.

Typhoid Fever in Monmouthshire.

There appears to be a decrease in the number of cases of typhoid fever in Pontypool and the adjoining districts. Up to the end of last week there had been 103 cases in Pontypool, 42 in Panteg, and 18 in Abersychan. The district councils concerned have decided to purchase a steam disinfector for the joint use of the districts. The guardians of the Pontypool union when applied to refused to allow their disinfector to be used for articles outside the workhouse. At the last meeting of the Pontypool council it was stated that already the epidemic had cost £100, a sum about equal to a rate of 1*d*. in the £. All the Pontypool patients are being nursed in their own homes and two district nurses have been provided by the district council. In his last report the medical officer of health (Mr. S. B. Mason) alludes to the indifference of householders in carrying out the most ordinary precautions. They themselves are constantly visiting persons ill with the disease and allow their children to do so as well and very few housewives can be persuaded to boil the drinking water. Dr. R. W. Johnstone, one of the medical inspectors of the Local Government Board, has been visiting the district on behalf of the Board.

Death of Mr. R. Thomason, M.R.C.S. Eng., L.S.A.

Mr. Richard Thomason, who died at Hereford on Sept. 24th, was the senior member of the profession in the city where he had carried on an extensive practice since 1855. He was born in Manchester and educated in Shropshire. In 1853 he obtained the Diploma of the Society of Apothecaries and in the following year that of the Royal College of Surgeons of England. He succeeded Mr. Thomas Camm in 1867 as surgeon to the Herefordshire General Hospital and after holding office for 30 years was elected a consulting surgeon to that institution. He was for many years one of the Poor-law medical officers of the Hereford union; at the time of his death he was surgeon to the Post Office and medical examiner of recruits on behalf of the War Office. He was of a retiring disposition, taking little part in the public life of his adopted town except in recent years when he attended very regularly to the duties of a county magistrate. When the reserve which seemed natural to him was pierced he displayed a kindliness and thoughtful consideration for others which had a special charm. About ten years ago he received a severe blow in the death of his only son who had been in partnership with him for little more than a year. He was married in 1862 and is survived by his widow and four daughters.

Death of Mr. R. S. Stewart, M.D. Glasg.

Dr. Robert Sloss Stewart, medical superintendent of the Glamorganshire County Asylum at Bridgend, died there on Sept. 28th from heart failure. Dr. Stewart received his medical education at the University of Glasgow, where he graduated as M.B. in 1883, taking the degree of M.D. in 1886. After holding resident appointments at the Western Infirmary, Glasgow, he was appointed assistant medical officer at the Glamorganshire County Asylum, and on the resignation of the medical superintendent (Dr. Henry T. Pringle) in February, 1904, he was unanimously appointed to the post. Dr. Stewart contributed various articles on mental diseases to the English and French medical journals. About 12 months ago he suffered from an attack of pneumonia which necessitated a prolonged absence from his professional duties.

Tuberculosis in Fowls.

At the quarterly meeting of the Somerset County Agricultural Instruction Committee, held at Taunton on Sept. 22nd, under the presidency of Mr. Bateman Hope, M.P., Mr. Walkey, the county instructor in poultry keeping, reported upon the prevalence of tuberculosis in fowls at Chew Magna. He added that the disease seemed more prevalent in Somerset than elsewhere. Mr. Walkey asked the committee to memorialise the Board of Agriculture so as to give him definite power to kill diseased fowls, as at the present time his instructions were hardly ever acted upon. Eventually it was decided to apply for permission to carry out experiments at Cotford Asylum farm to determine whether the disease was hereditary.

Oct. 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Physical Training in Schools.

THE importance that is nowadays attached to physical training as a necessary part of the educational code is an outstanding feature in the work of the schools in the city of Glasgow. Evidence of this is to be seen in the minutes of a recent meeting of the school board, where it was intimated that classes for instruction in Swedish drill are shortly to be opened and 300 teachers under the board have intimated their readiness to attend. This is evidently a step in the right direction, for if the physique of school children is to be improved it is essential that the teachers should have some conception of what physical training really is.

Proposed New Provisional Order for Glasgow.

The health committee of Glasgow has asked the corporation in its next Provisional Order to give it the power, already possessed by Huddersfield, of making it compulsory that births should be notified to the medical officer of health within 48 hours. The committee also recommends the corporation to apply for power to license farmed-out houses. With regard to the disposal of carcasses, the health committee is trying to arrange a conference with the butchers. It is not thought satisfactory that when a carcass is condemned it should be taken out of the market and it is now proposed that a carcass should not leave the hands of the

condemning authority—the veterinary surgeon—until it has passed all chance of again being utilised for human food. The committee also recommends the adoption of a system of marking to indicate that meat has been officially inspected.

Home for Epileptics at Bridge-of-Weir.

At the Orphan Homes of Scotland, Bridge-of-Weir, the first home in connexion with the new Colony of Mercy for Epileptics was formally opened. This is the first home in Scotland opened for epileptics and the idea originated with the late Mr. Quarrier who in his work amongst the suffering poor was struck by the lack of provision for young men and girls suffering from epilepsy. Shortly before his death Mr. Quarrier acquired a farm of 200 acres at a cost of £9000. The building erected for the reception of inmates cost £4000 and over and above that extensive drainage and water schemes have been carried out, together with the installation of an electric lighting system, which brought the cost up to £5500. The home has been started with the young men and these are already at work on the farm.

A Motor Ambulance Wagon.

The St. Andrew's Ambulance Association has been showing to those interested a motor ambulance wagon specially designed and constructed for it by the Argyll Motor Company. Two ignition systems are fitted and the gearing consists of three forward and one reverse, the wheels being of the artillery pattern. Special attention has been paid to the design of the springs; the rear is of an exceedingly flexible type and the front consists of a duplex spring arrangement. The frame is of an exceptionally strong construction, being a channel section and pressed from sheet steel. The internal dimensions of the wagon are: length, 8 feet; breadth, 3 feet 10 inches; and height, 6 feet. Electrical fittings have been provided in the shape of three ceiling lamps and one communicator by means of which instructions to the driver can be given from the interior. The body is insulated from the chassis by means of rubber pads and the full standard St. Andrew's ambulance equipment is provided inside.

Proposed Sanatorium in Dumfriesshire.

At a recent meeting of subscribers to the proposed sanatorium for consumptives in Dumfriesshire it was agreed that in view of the recent action of the Local Government Board it would be necessary to modify their original plans. As a result of the action of the Local Government Board it seems probable that the prevention and control of pulmonary tuberculosis in their respective areas will in future be undertaken by the local authorities. In that case it is likely that the three counties of Dumfries, Kirkcudbright, and Wigtown will amalgamate and erect one sanatorium capable of receiving patients from all three counties. In view of this possible arrangement it was agreed at the meeting of subscribers to embark upon no independent permanent scheme but to make arrangements for the treatment in neighbouring sanatoriums and by other means of suitable consumptive cases until such time as the plans of the local authorities should be carried out. It may be mentioned that the subscription list for the county amounts to £8437. There are in Wigtownshire at the present time 300 persons suffering from pulmonary tuberculosis and the average deaths from that cause alone are 143.

Oct. 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Public Health of Belfast.

ON Sept. 28th the Belfast corporation met in committee for the purpose of considering the applications for the post of medical officer of health, of which there were 16. It finally made the following short list: Dr. S. G. Moore (Huddersfield), Mr. H. W. Bailie (Belfast), Dr. F. J. H. Coutts (Blackpool), Dr. Charles O'Neill (Belfast), Dr. James Beatty (Northampton), and Dr. Alexander Robb (Paisley). Dr. Moore is the present medical officer of health of Huddersfield; Dr. Coutts is medical officer of health of Blackpool and was formerly assistant to Professor S. Delépine of Manchester; Dr. Beatty is medical officer of health of Northampton and was assistant medical officer of health in Manchester; Dr. Robb is medical officer of health of Paisley; Dr. Charles O'Neill is medical officer of health to the Castlereagh district council, Belfast; and Mr. Bailie has had no experience of public health work beyond the fact that until some months ago he was a member of the Belfast corporation and of the public health committee. He is L.R.C.P. & S. Edin. and L.F.P.S. Glasg. and his application states that he has been brought into intimate contact with citizens in every part of the city and has so gained an intimate knowledge which would, in his opinion, be of supreme value in discharging the duties of medical officer of health. This knowledge, together with his familiarity with the nature of the soil and subsoil in different districts of the city, and his lengthened experience of the climatic conditions, it is claimed, give him in dealing with the cause and prevention of disease an advantage which can only be acquired by years of study. Dr. Moore and Dr. Coutts are M.D.'s of the Victoria University, Dr. O'Neill is M.D. of the Royal University of Ireland, Dr. Beatty is M.D. of Trinity College, Dublin, Dr. Robb is M.D. of Aberdeen, while Mr. Bailie has no university degree. On Oct. 1st at 11 o'clock the council in committee elected Mr. Bailie, the final vote being 30 for him and 22 for Dr. Moore. When an hour later the council met at the usual monthly meeting an immense deputation presented the resolutions which had been passed at the citizens' meeting on Sept. 27th, but the appointment was ratified by a majority of 14 in a council of 50, though a strong protest was made by the minority.

Royal University of Ireland.

The Right Rev. Monsignor Molloy, Vice-Chancellor of the Royal University, and rector of, and formerly professor of natural philosophy in, the Catholic University of Ireland, died suddenly on Oct. 1st at Aberdeen where he attended as a delegate from the Royal University at the recent celebration and received the degree of LL.D. He was a member of the council of the Royal Dublin Society for many years and his science lectures delivered in the theatre there attracted large audiences. In consequence of his death the dinner about to be given by the past and present students of the Mater Misericordiæ Hospital to Sir Christopher Nixon at the Shelbourne Hotel on Oct. 6th has been postponed. Dr. Molloy was largely instrumental in passing the recent regulations by which further disturbances by rowdy students at the Royal University will be prevented.

Opening of the Medical Session in Dublin.

The Royal Academy of Medicine in Ireland has issued notices to all its Fellows that the annual meeting will be held at the Royal College of Physicians on Oct. 12th when the election of officers and members of sectional councils will take place. A lecture inaugural to the medical session will be delivered at the Meath Hospital by Sir Lambert H. Ormsby, M.D. Dub., on Oct. 8th. Mr. J. S. McArdle will deliver an address introductory to the medical session at St. Vincent's Hospital on Oct. 9th.

The Hygiene of the Irish Primary Schools.

The report of the Commissioners of National Education in Ireland for the school year 1905–06 indicates that the whole system of primary education in Ireland, in so far as it depends on the provision of proper school accommodation, is apparently in a state of paralysis. Insufficient floor space, insufficient seating accommodation, insufficient class-rooms, no provision for encouraging cleanliness and sanitation by means of the simplest form of lavatories—such are the features of the Irish schools. The overcrowded state of the schools in Belfast is so aggravated as seriously to endanger the health of the pupils and teachers. One of the senior Belfast inspectors, describing the accommodation in the schools under his charge in Belfast, says: "There are about 20 class-rooms in which there are no facilities for heating" and "25 class-rooms are too small for teaching purposes." The condition of affairs in some of the schools on the county Down side of the Lagan—a river which divides Belfast in two—is simply appalling. "Two days ago," the inspector reports, "for example, I visited a school and found 401 children present, though there is proper accommodation for only 209. The average daily attendance at this school was 329 for the year ending Dec. 31st, 1904. But much worse remains to be told. I found 78 infants in a room 19 feet by 9½ feet, 64 first standard pupils in a room 14 feet by 9½ feet (with one window admitting of being opened), and 33 first standard pupils in a room 13½ feet by 10 feet. Surely disgraceful is at best a mild adjective to describe this condition of things which loudly calls for attention. The congestion is so great that lavatories, cloak-rooms, halls, and passages are utilised for class

purposes." After giving such a terrible illustration the Commissioners add: "While overcrowding is the chief defect in the centres of population many of the school houses in rural districts are mere hovels; uneven earthen floors, broken roofs through which the rain freely enters, windows incapable of admitting sufficient light or air, are common defects. Even in schools that afford sufficient accommodation, and that are not defective on sanitary grounds, improvements are required to provide proper class teaching." With such an extraordinary state of affairs the question arises, What are the public health authorities in Belfast about to allow such a "disgraceful" state of matters to exist in their primary schools? An equivalent grant for purposes of education of about £185,000 per annum was voted in 1902 for Ireland, but this money was converted into a development grant, from which various Irish interests quite distinct from education were provided for. As a consequence the whole grant has been diverted from education. The Treasury has repeatedly proposed that building claims should be placed upon this development grant, and when it was evident that it was well-nigh exhausted by non-educational services that the rates should be charged. But the Commissioners cannot strike a rate and the Government holds out no prospect of legislation, such as the Treasury desires, being introduced. Hence, as the Commissioners say in their report, which is addressed to the Lord Lieutenant, "we appeal to the Irish Government strenuously to endeavour to remove it in the only way feasible—viz., by inducing the Treasury to abandon the attitude which they have taken up since the committee reported in 1902." The whole subject will be vigorously raised in Parliament next session. In the meantime—with such a state of affairs—is it any wonder that preventable diseases like tuberculosis and typhoid fever are so prevalent in Ireland?

The Treatment of Infectious Diseases in Belfast.

A curious controversy has arisen between the Belfast board of guardians and the city corporation which well illustrates the divided responsibility and the utter want of forethought in all public-health arrangements in that city. The guardians have forwarded a resolution (passed by them) to the city council asking to be relieved from the treatment of cases of infectious disease in future at the fever hospital, in order that that building may be allocated for the accommodation of other classes of workhouse inmates. In reply, the health committee stated that the accommodation in the Purdysburn municipal hospital is at present limited to 168 beds which will be allocated to the diseases scheduled under the Infectious Diseases Notification Act, 1889; that the corporation has not power to relieve the guardians of any of their legal responsibilities; and that the Purdysburn fever hospital will be available, so far as its accommodation permits, to all citizens under the provision of the Public Health (Ireland) Act, 1878, and that no particular class of the community will be given any preference. Such a cryptic legal answer is a mere beating the wind. The clear issue is, shall a citizen of Belfast ill of an infectious disease be always sent—as certainly is the opinion of the people—to the municipal fever hospital or shall he only be sent there until the beds are filled up—the number 168 is apparently too small—and then in such circumstances shall he be obliged to go to the union fever hospital, the entrance to which implies pauperism? Further, what shall be done with any person in the vast hospitals of the workhouse who develops an infectious disease? Shall he be sent to the union fever hospital or to the Purdysburn municipal fever hospital? All these questions every clear-headed citizen might have foreseen and arranged some plan to deal with such a situation, but such things occasion no concern to the public health committee in Belfast.

The Main Drainage of Belfast.

A hitch has occurred in connexion with the drainage scheme of Ballygomartin—a district in the north division of Belfast. The city surveyor is endeavouring to have the matter made right and is making arrangements to have an outlet made into the main sewer, provided no legal difficulty stands in the way.

New Ambulance Carriage for Belfast.

On Sept. 21st a new ambulance carriage, subscribed for by the public, was named "The Dudley," in appreciation of the great interest evinced by the Countess of Dudley in hospital and ambulance work, by Lady Dixon, wife of the Lord Mayor of Belfast, and was handed over to the chairman of the police committee by Mr. R. H. Reade, D.L. (the son of a former Belfast medical man) on behalf of the subscribers. Mr. Reade specially referred to the great aid rendered by one of the Belfast ambulances to his daughter who had sustained an accident in the hunting field.

The Epidemic of Typhoid Fever in Belfast.

The epidemic of typhoid fever in the Windsor portion of Belfast still continues and the public-health officials are trying to find out its cause.

Oct. 2nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

International Congress of Practical Hygiene.

AN international congress of practical hygiene will be held in Paris from March 26th to 31st, 1907. The president will be Professor Raphael Blanchard who is a member of the Academy of Medicine. The work of the congress will be conducted in eight sections. The principal items of the programme will be the hygiene of food, of military operations, of dwelling-houses, of factories and workshops, and of the colonies; general hygiene; the bringing-up of children; the hygiene of adolescence; and alcoholism. The full programme and the terms of admission may be obtained by making application to the general secretary of the congress, M. Schaer-Vezinet, 15, Rue des Petits-Hôtels, Paris.

Boiled Milk in Schools.

The French Minister of Public Instruction has just sent out to headmasters of schools (*recteurs d'académie*) a circular in the first part of which he reminds them that the permanent commission for the prevention of tuberculosis, sitting at the Ministry of the Interior, had recommended that no uncooked milk should be used in any school unless it came from dairies where all the cows were tested with tuberculin and examined by official inspectors. All milk intended for use in schools but unprovided with this guarantee should be pasteurised, boiled, or sterilised. The Minister then goes on to say that the permanent commission renewed the above recommendation four months later after having consulted the most recent statistics which showed that in certain parts of the country from 60 to 80 per cent. of the cattle were tuberculous. As this question was one of great importance for public schools which took boarders the Minister requested the headmasters to give such instructions to their subordinates as would insure that only boiled milk should be used where there were boarders.

The French Surgical Congress.

The nineteenth meeting of the French Surgical Congress was opened on Oct. 1st in the great amphitheatre of the Faculty of Medicine. The president was Dr. Monprofit, a professor in the school of medicine at Angers, and there was a large attendance of eminent surgeons, both French and foreign. In a brilliant inaugural address Dr. Monprofit reviewed the work of preceding congresses and described recent advances in surgery. He called attention to the danger of waiting too long before an operation was undertaken. He then spoke of the importance of early and diligent hospital attendance in the training of practitioners and expressed the hope that the two years of military service which the new law has made obligatory on all students would be profitably employed by them in gaining practical experience in the military hospitals. He concluded with a touching tribute to the memory of deceased members. The annual report was read by M. Walther, the general secretary. The first item on the programme was the surgery of the large venous trunks and there was a discussion on the subject in which several speakers took part.

International Congress on Alimentary Hygiene.

As already mentioned in THE LANCET of Sept. 22nd, p. 835, the First International Congress on Alimentary Hygiene and a Rational Diet for Man will be held at the Paris Faculty of Medicine from Oct. 22nd to 27th. The congress will include the following 12 sections: (1) biological physics; (2) biological and physiological chemistry;

(3) rational food systems and dietetics; (4) analytical chemistry, adulteration, and legislation; (5) bacteriology, toxicology, and parasitology; (6) statistics, instruction, and ways and means; (7) application of hygienic principles in the manufacture and preparation of food, and conveyance of food from place to place; (8) the hygiene of food and rational food systems in the home and elsewhere; (9) coöperation and competition; (10) distribution of food gratis or at reduced prices; (11) food in relation to the prevention of alcoholism and tuberculosis; and (12) the diffusion of knowledge in schools and elsewhere with respect to rational food systems and the hygiene of food. The first seven of these 12 sections constitute Division 1 of the congress, dealing with scientific methods and Professor Bouchard and Professor Armand Gautier will preside. The five last sections constitute Division 2 of the congress, dealing with social questions relating to food; the president will be M. Jules Siegfried.

Oct. 2nd.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The German Association of Naturalists and Medical Men.

THE annual meeting of the German Association of Naturalists and Medical Men took place at Stuttgart from Sept. 17th to 23rd. Some fears have been recently expressed that this old and celebrated society was suffering from the competition of the numerous special congresses which have been recently inaugurated, and it must be acknowledged that of late years important papers have seldom been read at its meetings, original researches by the members being communicated either to some congress of specialists or to one of the great international congresses. For the last two years the joint meetings of the naturalists and medical men, though very successful from a social point of view, have not accomplished much so far as scientific work is concerned. Numerous proposals have been made to improve this state of matters. It has been suggested that the congresses of the association should take place every second year, the intermediate year being reserved for congresses of the special branches. An agreement would have to be made between the committees of the association and of the various special congresses and it is very doubtful whether an arrangement of this kind would be accepted by certain committees. Some congresses—such as, for instance, the Surgical Congress which meets every year at Berlin in the week after Easter and owns a house of its own (Langenbeck House), would certainly decline to modify its procedure so as to meet the views of the Association of Naturalists and Medical Men. At some of the recent congresses of the latter association it was arranged that some of the medical sections should hold a joint meeting where questions relating to different branches of medicine were to be discussed apart from the old-established general meetings where medical men and naturalists meet together to listen to lectures on subjects of general interest and where no discussion takes place. But all these proposals, whether they have come into actual operation or whether they have stopped short in the inceptive stage, have not succeeded either in restoring the congresses to the position of a scientific centre which they formerly held or in bringing their utilitarian side to a level with the social side which is now predominating more and more. It is easy to see that a great many of the members attend the congress more for social than for scientific purposes, and this is not surprising, for the tendency to reserve original papers for the special congresses is so strong that little is available for the Association of Naturalists and Medical Men. The hybrid constitution of the association, as indicated by its name, forms another difficulty, for the majority of the papers are concerned with natural science and many of them are not of medical interest. Medical science ought in fact to have a congress of its own. Notwithstanding the enormous number of congresses of various kinds no general medical association exists in Germany. It has been said that the Association of Naturalists and Medical Men serves a useful purpose by maintaining a connexion between medicine and natural science, but it is carrying this idea too far when dermatologists and mathematicians, or surgeons and astronomers are brought together to discuss their several fields of work at one and the same meeting. If a general medical congress were established the connexion of medicine and natural science could be maintained by addresses on subjects belonging to natural science delivered by specially invited speakers. The sections of the medical congress would then take the place of the now existing congresses of the special branches of medicine. The recent congress at Stuttgart was fairly well attended. In a general meeting of the congress the question of regeneration and transplantation of tissues and organs of animals was discussed. Professor Garré, speaking from a surgical point of view, mentioned the successful transplantation of a thyroid gland into the spleen for the treatment of cretinism and said that the difficulty lay in procuring a sufficient blood circulation in the transplanted organ. He had lately improved his technique of suturing blood-vessels, so that he was now able to join blood-vessels of as small diameter as 1·5 millimetres. He was by this means enabled to transplant a kidney from one dog to another dog and to join the ureter with the bladder, the result being that the transplanted kidney discharged urine into the bladder. In the dermatological section Professor Neisser of Breslau gave an account of his investigations on syphilis in monkeys, a subject to which reference has been already made in THE LANCET. He said that in one case where the diagnosis of syphilis was doubtful in a patient the question had been decided by a successful inoculation of glandular fluid into a monkey. Professor Hofmann of Berlin said that the spirochæta pallida had been discovered in syphilitic persons every time that it had been looked for, so that no doubt any longer existed as to its virulent action. In the neurological and forensic section Professor Gudden of Munich read a paper on the legal responsibility of certain people who commit thefts from large retail shops. He explained that the majority of these offenders were in the habit of taking objects of no use to them and that from this fact it must be concluded that they pilfered without premeditation. Going into further details he said that 99 per cent. of them belonged to the female sex and were either psychopathic, asthenic, or hysterical persons, who must be regarded as not responsible for their actions. In the section of hygiene the relation between human and bovine tuberculosis was discussed. Dr. Weber of the Imperial Health Office said that it had been proved by the researches carried out by the office that human beings might be infected by bovine bacilli. 14 new cases of infection were ascertained, the patients being children from one to 12 years of age; 50 per cent. of all the cases of intestinal tuberculosis were of bovine and 50 per cent. were of human origin. Dr. Wersenhoeffer of Berlin read a paper on the Causes of Cerebro-spinal Meningitis. The diplococcus intracellularis discovered by Professor Weichselbaum of Vienna in meningitis was found to be present within the mucous membrane of patients suffering from cerebro-spinal meningitis. The diplococcus produces a specific pharyngitis and the infection then makes its way from that region into the meninges. In a meeting of the combined medical sections the question of traumatic neurosis and the influence of the workman's insurance laws on its aggravation was discussed.

The late Professor Hermann Cohn.

Dr. Hermann Cohn, professor of ophthalmology in the University of Breslau, died in that city on Sept. 15th. Although his name was not associated with discoveries in the surgery or pathology of the eye he was held in great esteem by the medical world and the public at large as a leading ophthalmologist. His examination of the eyes which he carried out in 10,000 school children led him to the discovery that myopia increased in proportion to the standard of the school and the grade of the class, so that in village schools and in the lower class the myopia was least frequent, whilst the acme was reached by the pupils of the gymnasia in towns. His observations induced him to advocate improved methods in the lighting of the class-rooms, in the printing of schoolbooks, and in writing, &c., which were in course of time introduced according to his advice. Professor Cohn was born in 1838 in Breslau; he first devoted himself to natural science and took the degree of doctor philosophiæ in 1860. He then studied medicine and took the degree of M.D. in 1863. In 1864 he became an assistant to the late professor of ophthalmology, Professor Foerster; in 1868 he was recognised as *privat-docent*, and in 1874 he was appointed professor of ophthalmology in Breslau, where he spent the remainder of his life.

Oct. 1st.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Francesco Roncati.

A STRIKING and genial personality has disappeared from the professional foreground in Dr. Francesco Roncati of Bologna where he succumbed on Sept. 14th to a long and painful illness. Of Modenese parentage he was born at Spilamberto in 1834, but from education and life-long sojourn he was fondly claimed by Bologna where for more than half a century he was conspicuous in academic, consultant, and civic circles, first as professor in the University, next as director of the great Manicomio (lunatic asylum), and finally as a social, if not political, force. His intellect, at once acute, nimble, and weighty, owed much to systematic and thorough training and the professional authorship in which these qualities were apparent brought him so effectively into notice that he passed in quick succession from the chair of public health to that of legal medicine and finally to that of psychiatry, which had long been his special and favourite study. On the clinical side of the subject he showed an aptitude quite *hors ligne*, when, in connexion with the chair, he became also director of the Manicomio, the administration of which he improved and made progressively efficient during his 40 years' tenure of the post. Both with pupils and colleagues he was a particular favourite, always accessible and pleasant-mannered, keeping, however, his eminently "popular" gifts in due subservience to the honour and dignity of the profession. It was thus that with something like "acclamation" he was appointed rector of the University and discharged the duties of the post with a success that will long be remembered in the Bolognese school. His Excellency the Minister of Public Instruction telegraphed his condolences to the Roncati family and also to the Senatus Academicus on learning their loss and deputed the rector to represent him at the funeral which took place on Sept. 15th.

Deaths from Ptomaine Poisoning.

Now that the "seekers after sun" are beginning to descend on the Italian winter cities, it may be well to give a note of warning as to the dangers which they incur by the food that may be set before them. The tinned-meat scandals that have filled the journals—professional and lay—in England and America have had their echo in Italy, where, particularly at hotels, pensions, and public restaurants, preserved viands are apt to be served at every meal—morning, noon, and night. However carefully the said viands may have been packed there is no means of knowing how long they have been kept in store or whether they may not have undergone chemical changes productive of disease or even death in the consumer. A lamentable instance in point has occurred in Turin, where ptomaine poisoning on an extensive scale has been traced to the consumption of preserved tunny, a favourite delicacy eaten generally with salad. Expert examination has been followed by an official report, according to which tunny, even if in the first instance quite sound and carefully packed, "can elaborate and contain in its organism toxic substances not completely destroyed by boiling, which, when ingested by the human subject, may cause irritant poisoning." When these substances, moreover, are developed, their presence may be so effectively disguised by the chemical treatment now practised even by cooks that deadly mischief may have been incurred by their ingestion and not realised by the consumer till too late. Nothing seems likely to arrest this active cause of disease but the combined "boycott" of such foods on the part of the public, as recommended by more than one health officer. To such a demonstration the landlord class are peculiarly sensitive—nowhere more so than on the continent. As I write a Milanese journal, under the title "Ne uccide più la Gola che la Spada" (more are killed through the œsophagus than by the sword), reports a case of wholesale poisoning from the ingestion of oysters on the Ligurian seaboard. Of a company of soldiers, it seems, six were seized with excruciating intestinal pains after eating heartily of oysters and on being carried to the hospital of San Rocco two died, while the other four (having consumed less) are still "gravemente ammalati." The oysters, it turns out, had been kept in a receptacle "non bene stagnato" (not well soldered) and the inference is drawn that it was not a case of ptomaine but of metallic poisoning.

Honours to Italian Men of Science at the Aberdeen Quatercentenary.

The degree of LL.D. was conferred at this celebration on Professor Cesare Lombroso of Turin, founder of the "new science" of criminal anthropology; on Guglielmo Marconi of wireless-telegraphy renown; on Guglielmo Romita, professor of anatomy at Pisa—eminent not only as a teacher but as an investigator; and on Giuseppe Veronese, the distinguished occupant of the chair of analytical geometry in the University of Padua. The Cavaliere Rudolfo Lanciani, famous among other archæological achievements for his work on the water-supply of ancient Rome, also received the same academic honour.

Sept. 29th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

No More Expectoration on Sidewalks.

ACCORDING to the plan of campaign recently adopted by the tuberculosis committee, which is composed entirely of non-medical members, there will be no more expectoration either on sidewalks or in public places or vehicles. The members of the committee strongly recommend that wide publicity should be given to the anti-expectoration ordinance, aided by the press and printed cards, the latter to be brief and forcible. Offenders caught in the act are to be prosecuted forthwith. The committee has drafted a formal memorial to the city council in the following terms. 1. The police and health departments shall be instructed to cause the arrest of persons who wilfully and persistently violate the ordinance by expectorating on sidewalks, &c. Of course, it is not possible to arrest every offender, but an occasional arrest would call the attention of the public to the ordinance and the nuisance. 2. Notices to this effect shall be given to proprietors of halls, &c.; they shall be posted on patrol boxes and other conspicuous places, and an order shall be issued to provide for posting them in tramcars, &c. The committee was instructed (1) to make representations to the various companies engaged in the conveyance of passengers urging the need of cleaner cars; and (2) to secure coöperation from the Board of Education in bringing to the attention of school children the evil of the spitting habit, in order that they might take the lesson to their homes.

A Crusade against Tuberculosis.

The preliminary announcement of a far-reaching crusade against tuberculosis has been made by Professor Koranyi who is acting in conjunction with the Princess Elisabeth. Registration of cases of the disease is to be the first step in the plan as outlined. Added to this will be the removal of infected persons to a camp to be established in a mountainous part of the country. The coöperation of the State authorities is to be enlisted, as the camp would at first have to be sustained by grants, though there is reason to believe that it could be made self-supporting later. The scheme as outlined will take considerable time to put into working shape but it will be pushed as fast as the necessary aid can be secured.

Typhoid Fever and Flies.

The sanitary adviser of a country town in the official report of his investigation of the origin of a recent epidemic of typhoid fever at the local jail, said that several cases of typhoid fever had occurred in dwelling houses in one of the streets that skirt the jail premises and that flies had carried the typhoid bacilli from these houses into the jail, entering by the open windows and depositing the bacilli on the food in the kitchen. There were four deaths among the 17 patients who suffered from typhoid fever in the jail.

The Mortality under Anæsthesia in Hungary.

The annual returns of the Hungarian registrar-general show a steady decrease in the number of deaths under anæsthetics since the year 1900. In that year there were 31 deaths registered as due to anæsthetics. This was an entirely unnecessary price to pay for the boon of anæsthesia, since the chief reason of these accidents, as Professor Dollinger says, is ignorance of the most elementary principles of the subject. He believes that deaths from chloroform are

due simply to a too great concentration of the inhaled vapour. Ether has of late become much more popular in Hungary than formerly and in consequence of this the number of deaths from anæsthetics has decreased.

Sept. 27th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Vital Statistics in the Turkish Metropolis.

THE new and energetic prefect of the city of Constantinople, Réshid Pasha, is about to introduce a sanitary reform which will, if realised, prove to be of great service to the population of the Ottoman metropolis. He intends to reorganise the public service of vital statistics which up to now has been in a very unsatisfactory condition. Réshid Pasha proposes to alter this unsatisfactory state and to introduce sanitary statistics of a more regular and precise character. The sanitary inspectors of each municipal district will henceforward have to furnish exact information concerning the different infectious diseases. The precise number of persons suffering from these maladies will also have to be recorded and much greater attention will be paid to the rate of mortality. It is very desirable (says the Turkish newspaper *Sabah*) to include in this sanitary reform the whole Ottoman Empire and to enjoin upon the provincial sanitary inspectors the duty of sending to the prefecture of the capital regular monthly reports concerning the vital statistics of their vilayets. These reports should be published periodically.

A New Water-supply.

The machinery and the reservoirs at Kiat-Hané (the so-called Sweet Waters of Europe), which have been in a deplorable condition for some time past, are at present being repaired at the express command of the Sultan. These repairs were necessitated by the insufficiency of the water-supply from Taxim which furnishes the whole European quarter Pera. The works are being executed under the special supervision of the city prefect, Réshid Pasha. Once accomplished, the renewed installation will furnish Pera with 2000 cubic metres of excellent drinking water daily.

The Sale of Old Clothes and its Dangers.

A number of poor people, Armenians, Jews, and Greeks, gain a living in the metropolis by selling old clothes, which they buy for very trifling sums, to merchants. These, in their turn, sell them to the public, after having given them, through diverse skilful manipulations, the appearance of quite a new article. The danger to the public health of such a practice is obvious. These clothes are never disinfected. Some have been worn by people suffering from infectious diseases and many infectious cases have been directly traced to the garments so bought. The public authorities are beginning to pay attention to this dangerous practice and it is hoped that it will be put an end to.

Sept. 27th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Increase of Immigrants suffering from Trachoma.

THE Commissioner of Immigration reports that more immigrants are arriving in this country suffering from trachoma than at any former period. Ten persons afflicted with this disease have been deported daily for the last two months. Steamship companies on whose vessels these immigrants are brought to this country are heavily fined for every case proved against them, the fine being $100 for each person. For 60 days prior to August 4th the Department of Commerce and Labour assessed in fines on steamship companies $8100 for bringing into this country aliens suffering from communicable diseases. Most of the diseased immigrants were suffering from trachoma. On a single day, August 22nd, fines were levied on steamship companies aggregating $1200. The department is unable to explain how it is that so many cases of this disease reach these shores when every emigrant from foreign ports is compelled to submit to a medical examination before he purchases a ticket for his passage.

Medical Education in the United States.

The total number of medical colleges in the United States on June 30th, 1906, was 161; of this number 130 are regular, 18 are homœopathic, 9 are eclectic, 3 are physio-medical, and 1 is unclassifiable. Seven of the regular colleges do not grant degrees, teaching only the first and second years' studies in the medical course. The total number of matriculated medical students for the year was 25,204, of which number 23,116 were in attendance at the regular schools, 1085 at the homœopathic, 644 at the eclectic, 110 at the physio-medical, and 249 at the unclassified school. The attendance at the regular schools shows a decrease of 1003, as compared with the attendance last year; the number of matriculants for 1906 was, in fact, the smallest since 1900. The number of graduates for the last year was 5364, the smallest number since 1902, when it was 4999. The number of women studying medicine in 1906 was 840, or 3·3 per cent. of all medical students, as against 4·1 per cent. last year. There were 233 women graduates last year, or 4·5 per cent. of all the graduates.

The Fourth of July Tetanus and its Prevention.

Tetanus, due to the poisoning of wounds inflicted by explosives on July 4th, has become a very serious annual casualty. Efforts to prevent the occurrence of these attacks have been made, chiefly by informing the public of the dangers which are liable to follow the use of toy explosives, but with little effect. In 1904 Dr. Schreck, of the health department of the city of St. Louis, Missouri, resorted to the use of the antitetanic serum for the purpose of immunising the patient and with very satisfactory results. Recently he published the results of the three years' trial, which are as follows: In 1903, when the serum was not used, there were 56 cases, of which number 16 died from tetanus; in 1904, when the serum was first used, there were 37 cases and no deaths by tetanus; in 1905 there were 84 cases in which serum was used with no deaths; and in 1906 there were 170 cases and no deaths, the serum being used in all. The treatment consisted in freely opening the wound, thorough cleansing and disinfection, cauterisation with a 25 per cent. solution of carbolic acid, and injection into the cellular tissue of the abdominal wall of ten cubic centimetres of immunising serum.

Railway Car Sanitation Rigorously Enforced.

The health authorities of the State of Texas have adopted and are enforcing a code of sanitary rules for the sanitation of railway cars which will insure to the travelling public immunity from many of the discomforts to which it is now subjected. Sleeping cars are to be kept so clean at all times that there can be no possibility of the accumulation of dust or filth of any kind. A measure of the greatest importance is a discrimination between sleeping cars running within the State and those leaving the State for other States. The latter are not only subjected to the rigid rules of those within the State but they are required to be fumigated thoroughly every second or third trip according to the number of days which the trip occupies. If an infectious disease is found on board the car must be detached at the next station and disinfected before it is again used.

Securing Patients through Paid Agents.

A pernicious custom has grown up, especially at summer resorts and medicinal springs, of seeking practice from strangers by the resident physicians through the medium of paid agents. The legislature of the State of Arkansas, where this custom had become most prevalent, passed an Act prohibiting physicians from securing patients in this manner. Recently the matter was brought before the Supreme Court of that State by the prosecution of an offender by an association of physicians formed for the purpose of upholding and enforcing the law. The court decided that the law was not only constitutional but that it was a most salutary provision for the protection of the public health.

Enforcement of the Pure Food and Drug Law.

The "Pure Food Law," lately passed by Congress, is being enforced in all parts of the country by the local health authorities. In New York the code of sanitary ordinances has been modified in accordance with the provisions of the law and these ordinances, so amended, will be rigidly enforced, both against impure foods and adulterated drugs. This is the first step taken in this country to secure pure drugs. Drugs are defined in the amended code to include all medicines for external or internal use, or both. Any drug is

deemed adulterated if, when sold by or under a name recognised in the United States Pharmacopœia or national formulary, it differs from the standard of strength, quality, or purity as determined by the test laid down in the United States Pharmacopœia or national formulary official at the time of the investigation; provided that no drug defined in the United States Pharmacopœia or national formulary shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the bottle, box, or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or national formulary. The new code states at length and with detail definitions of impure foods. It now seems impossible to effect the sale of impure foods and drugs in this city if the code is strictly enforced.

Sept. 22nd.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Mahomedans and Quarantine.

FOR some time past the Mahomedans of Bombay have been agitating and petitioning for the removal of the quarantine arrangements against pilgrims to Mecca and the reduction of quarantine at Kamran has given them an excuse to raise a protest again. At a large meeting held in Bombay some indignation was expressed that in spite of protests from the entire population of 60,000,000 of His Majesty's Mahomedan subjects the Government had made no alteration and the meeting urged upon the Government the necessity of the immediate abolition of quarantine in Bombay, because besides being a serious annoyance it was an unnecessary interference with the religious rites of the followers of Islam. They further urge that the recent conditional reduction of quarantine at Kamran cannot be regarded as justifying the maintenance of quarantine in Bombay, as pious pilgrims would rather undergo the full period at Kamran than reduced quarantine at each end of the journey. There is no reason why quarantine should be relaxed now, as Bombay is still infected with plague and the mortality in Bombay and throughout India is rising. For the safety of the Near East as well as of Europe it is to be hoped that this protest will not be listened to. It is impossible to trust to quarantine imposed under the Turkish Government and if an outbreak of plague occurred on a pilgrim ship the consequences on landing in Arabia might be disastrous. If anything has saved the Mediterranean and Europe from plague it is the admirable system of quarantine which has been maintained in Bombay.

The Plague Mortality in India.

The plague mortality throughout India is steadily rising. A month ago 562 deaths were the weekly record, while for the last week in August the figures have risen to 2522. Poona City has once more been suffering severely, the death-rate from plague alone during the past seven days being at the rate of 173 per 1000 per annum. Central India returns 303 deaths, chiefly for Indore City. In Burmah the disease is subsiding. This province has so far escaped lightly, although Rangoon reported 416 deaths during the month of August. It is stated that as measures for the destruction of rats have been so successful in the Punjab there is a probability of but little plague there this season. The complete extermination of rats has not been accomplished anywhere and the destruction has not been carried out in many towns over a sufficiently wide area. In Umballa, for example, the native city was largely denuded of rats but the cantonment was comparatively neglected and the consequence was that the rats disturbed from the native city overran the cantonment.

The Economic Disposal of Carcasses in Calcutta.

It is reported from Calcutta that the new installation for the disposal of carcasses contracted for with a German firm is working very satisfactorily. The carcasses are placed in a huge digester when they are subjected for several hours to steam under high pressure. The gelatinous and oily matters are run off and subsequently separated and treated, while the flesh and bones exposed later to a dry heat are converted into a powder suitable for an artificial manure. This new process is conducted on wild swamp land outside the city boundaries. It is to be hoped that the corporation will take over this business at the end of the contract.

Sept. 13th.

Obituary.

WHITLEY BLAND STOKES, M.D. DUB., F.R.C.S. IREL., F.R.C.S. ENG., M.R.C.P. LOND.

Dr. Whitley Bland Stokes of 37, Onslow-square, South Kensington, who died recently at the early age of 42 years, was a highly esteemed practitioner and belonged to a family whose names are as well known in science, literature, and the Indian Civil Service as in medicine and surgery. He received his professional training at Trinity College, Dublin, and St. George's Hospital, London. In 1883 he took the diploma of L.R.C.S. Irel. and was admitted a Fellow of the College in 1889. He graduated as M.D. at the University of Dublin in 1895 and in that year was also admitted a Member of the Royal College of Physicians of London, becoming a Fellow of the Royal College of Surgeons of England in 1899. After becoming qualified Dr. Stokes entered the service of the Army Medical Department and became surgeon-captain, but retired on account of ill health, the result of typhoid fever and dysentery contracted soon after his arrival in India. This incapacitated him for several years but when his health improved he settled in general practice in South Kensington, where he gained a good connexion, and he leaves a large number of patients to mourn the loss of one who proved himself to be a valued friend, as well as a painstaking and skilful physician. He had held many and varied appointments. In Dublin he was assistant master of the Coombe Lying-in Hospital and in London he was assistant physician to the Hospital for Diseases of the Chest and Heart, medical registrar to St. George's Hospital, and anæsthetist to the Throat Hospitals in Golden-square and Great Portland-street. Dr. Stokes was a typical specimen of a warm-hearted Irishman, genial, generous, and impulsive; he had a high sense of professional rectitude and an intolerance of anything dishonourable. A thorough sportsman and an enthusiastic yachtsman, golfer, and fisherman, he was a general favourite and his manly form and his genial cheery greetings will be much missed not only by his *confrères* in South Kensington but also by the many consultants to whom he was well known.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following foreign eminent medical men are announced:—Dr. Wilhelm Czermak, professor of ophthalmology in the German University of Prague, in his fiftieth year, from an apoplectic attack. He studied in Gratz and was for several years *privat-docent* of ophthalmology in Vienna. In 1892 he was offered an extraordinary professorship in Innsbruck, from which he migrated three years later to Prague. He published a "Manual of Eye Operations" and a number of papers on ophthalmological topics.—Dr. Andreas Hoegyes, professor of pathology in Budapest. He was editor of the Hungarian medical journal *Orvosi Hetilap* and published a good many papers in German and Hungarian medical journals.—Dr. W. E. Taylor, formerly professor of surgery in the University of California, San Francisco.—Dr. Hunter P. Cooper, professor of anatomy and surgery in the Atlanta College of Physicians and Surgeons.

WATER-SUPPLY OF TORQUAY.—A Local Government Board inquiry was held recently at Torquay into the application of the town council for sanction to borrow another £14,400 to complete the construction of the new storage reservoir at Tottiford, Dartmoor, the original estimate of which was £22,000 but which will eventually cost a sum exceeding £56,000.

CRIPPLED CHILDREN'S CHRISTMAS HAMPERS.—H.R.H. the Prince of Wales has sent to Sir William Treloar £5 as a donation to his "Crippled Children's Hamper Fund." The fund has for special reasons been opened much earlier than usual this year and His Majesty the King, as has already been stated, has sent his annual subscription of 10 guineas. The object of the fund is to send a hamper of Christmas fare directly to every crippled child in London who cannot attend the annual children's banquet at the Guildhall. On an average over 7000 hampers are thus despatched every Christmas, each containing enough to enable the child to act as host to the family for the day. Subscriptions should be sent to Alderman Sir William Treloar, 69, Ludgate hill, E.C., who has now kept up the scheme for 13 years.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in September the following candidates passed in the subjects indicated :—

Surgery.—H. A. Fenton (Section I.), St. Mary's Hospital; Q. S. Kent (Sections I. and II.), Cambridge and St. Mary's Hospital; and C. J. M. Lawrence (Section I.), Manchester.
Medicine.—C. C. Morrell (Section I.) and J. W. Peatt (Section II.), London Hospital; and G. M. Seagrove (Section I.), St. Bartholomew's Hospital.
Forensic Medicine.—A. E. Blythman, Charing Cross Hospital; M. L. Ford, London Hospital; Q. S. Kent, Cambridge and St. Mary's Hospital; and C. C. Morrell, London Hospital.
Midwifery.—Q. S. Kent, Cambridge and St. Mary's Hospital; and G. Rollason, Birmingham.

UNIVERSITY OF DURHAM.—At the Third Examination for the degree of Bachelor in Medicine held in September the following candidates satisfied the examiners :

Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.—Second class Honours : Charles Frederick Morris Saint, College of Medicine, Newcastle-upon-Tyne; Elizabeth Patteson, London School of Medicine for Women; and David Ranken, College of Medicine, Newcastle-upon-Tyne. *Pass List :* Kenneth Bruce Allan, Herbert Ridley Crisp, and Henry Glendinning Davison, College of Medicine, Newcastle-upon-Tyne; Harold Ferens, St. Thomas's Hospital; Charles Westland Greene, Royal College of Surgeons in Ireland; Isaiah Hodgkinson and Frank Widowfield Melvin, College of Medicine, Newcastle upon-Tyne; Charlotte Purnell, London School of Medicine for Women; Francis Aidan Robinson, Edward Davison Smith, and Basil Taylor, College of Medicine, Newcastle-upon-Tyne; John Henry Tripe, M.R.C.S., L.R.C.P., London Hospital; Lionel Langford Westrope, College of Medicine, Newcastle-upon-Tyne; and Frank Whitby, St. Bartholomew's Hospital.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore (Johns Hopkins University) :* Dr. W. W. Ford has been appointed Associate Professor of Bacteriology and Dr. Arthur S. Lœvenhart Associate Professor of Pharmacology and Physiological Chemistry.—*Erlangen :* Dr. Jamin has been appointd Extraordinary Professor of Medicine and the History of Medicine; Professor Hauser has declined the invitation to succeed Dr. von Rindfleisch in Strasburg.—*Göttingen :* Dr. Stolper has been appointed Extraordinary Professor of Forensic Medicine.—*Munich :* Dr. Fritz Lange has been appointed Extraordinary Professor of Orthopædic Surgery.—*Naples :* Dr. Giuseppe Giardina of Palermo has been appointed Extraordinary Professor of Hygiene.—*New York (Cornell University) :* Dr. Charles L. Gibson has been appointed Professor of Surgery.—*Würzburg :* Dr. Otto Seifert has been appointed Extraordinary Professor of Dermatology and Venereal Diseases.

ST. BARTHOLOMEW'S HOSPITAL.—The following entrance scholarships have been awarded :—Senior entrance scholarships, value £75 each: A. E. Stansfeld and A. C. Sturdy. Junior entrance scholarship, value £150: R. G. Hill and C. T. Neve (equal). Preliminary scientific exhibition, value £50: J. W. Trevan. Jeaffreson exhibition, value £20: C. Bilderbeck.

THE LONDON HOSPITAL MEDICAL COLLEGE.—The following scholarships have been awarded :—Price scholarship in science, value £130, Mr. H. B. Walker; science scholarship, value £60, Mr. Frederic Sanders; science scholarship, value £35, Mr. R. A. Rowlands; Price scholarship in anatomy and physiology, value £60, Mr. E. J. Fearnsides; and Epsom scholarship, value £120, Mr. R. K. Mallam.

UNIVERSITY OF CAMBRIDGE.—Mr. F. A. Potts, Trinity Hall, has been appointed assistant to the superintendent of the Museum of Zoology. Dr. H. B. Roderick, Emmanuel College, has been appointed demonstrator of surgery and Mr. J. J. Lister, F.R.S., St. John's, demonstrator of comparative anatomy.—The Frank Smart scholarship in botany has been awarded to D. Thoday, B.A., Trinity College.—By the untimely death of Professor Marshall Ward on August 26th the chair of botany is vacant. The election of his successor will take place on Nov. 3rd.—The name of R. E. Barnsley, Trinity, should be added to the list of successful candidates in biology for the first M.B. examination of last term.—The following have been approved for the Diploma of Tropical Medicine and Hygiene: S. Anderson, R. T. Booth, C. W. Holden, T. C. Lauder, H. S. McGill, E. McK. Nichol, A. T. Stanton, L. P. Stephen, E. Wilkinson, and A. W. C. Young.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships have been awarded :—The Epsom scholarship (115 guineas) to B. F. Eminson; the Livingstone scholarship (100 guineas) to N. C. Lake; and the Huxley scholarship (55 guineas) to H. Smith. Entrance scholarships have also been awarded to R. F. Eminson (60 guineas), A. E. Huxtable (40 guineas), and M. Barker (30 guineas). Universities exhibitions of 36 guineas each have been awarded to F. C. Davies, University of Cambridge, and E. A. Ramsdon, University of Oxford.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The following have been elected to entrance scholarships :—Medical entrance for University students, £50, Norman Prescott; Sambroke scholarship (Science), £100, V. E. Negus; Warneford scholarship (Arts), C. H. Attenborough. The following are the awards of scholarships and prizes for the work of the past session: Rabbeth scholarship, S. Ritson; second year scholarship, S. Hoyte; third year scholarship, Basil Hughes; Jelf medal, Basil Hughes; Warneford prizes, H. O. West and V. H. Starr; Tanner prize, J. Browne; Leathes prize, H. O. West; Barry prize, H. A. Moody; Hughes memorial prize, Basil Hughes.

ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of this institute will be held at the Council Chamber, Town Hall, Victoria street, Belfast, to-day (Friday, Oct. 5th) at 7.30 P.M., when a discussion will take place on the "Sewage Purification Problem, with special reference to Sewage Discharge into a Tidal Estuary." The discussion will be opened by Dr. James D. Williamson, vice-chairman of the police committee, Belfast corporation. The Right Hon. Sir Daniel Dixon, Bart, M.P., Lord Mayor, will preside and welcome the members and the chair will be taken during the discussion by Professor A. Bostock Hill (member of council of the institute).

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At the examination for Entrance Scholarships held in September the following awards were made: Open Scholarships in Natural Science: Combined scholarships of £145 and £78 15*s.* were divided between G. Roche Lynch, St. Paul's School, and R. G. Sparkes, Felsted School; and A. Murray Stuart, Cheltenham College, and P. Withers Green, Epsom College, each took £52 10*s.* University Scholarships of 60 guineas each: W. D. Hopkins, B.A., Trinity Hall, Cambridge; and F. G. Caley, B.A., Pembroke College, Cambridge, and G. H. Drew, B.A., Christ's College, Cambridge (equal). The Epsom College Scholarship (value £145) has been awarded to T. W. W. Powell, a student of the College, on the nomination of the headmaster.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—The following scholarships, prizes, &c., were awarded during the session 1905–06:—Practical pharmacy: S. J. Lee (prize). Chemistry: E. W. Hall and S. L. Tressider (equal) (prize). Biology: R. C. J. Douty (prize); and E. W. Hall (certificate). Organic chemistry: G. O. Teichmann (prize); and R. W. Annison, A. O. English, B. S. Simmonds, and P. S. B. Langton (certificates). Histology: R. W. Annison and A. O. English (equal) (prize); G. O. Teichmann and G. de H. Dawson (certificates). Physiology: R. W. Annison (prize); and A. O. English (certificate). Practical anatomy: J. B. Tackaberry (prize); and G. de H. Dawson and H. G. Kilner (certificates). Anatomy: H. G. Kilner and J. A. Rose (equal) (prize); and J. B. Tackaberry, G. O. Teichmann, G. de H. Dawson, and B. S. Simmonds (certificates). Pathology: R. M. Peake (prize); and W. Gilliatt, F. R. Smyth, C. H. S. Webb, and H. J. Woods (certificates). Bacteriology: E. L. Kennaway and C. F. Robertson (prize); S. H. Griffiths and S. Slade (certificates). Forensic medicine and public health: E. L. Kennaway (prize); and D. Wainwright (certificate). Psychological medicine: C. H. S. Webb (prize). Practical midwifery: R. M. Reake (prize); C. F. Robertson (certificate). Practical surgery: C. F. Robertson (prize). Practical medicine: J. T. Daly (prize); and W. Gilliatt, F. R. Smyth, C. H. S. Webb, and H. F. Woods (certificates). Midwifery: C. H. S. Webb (prize); and D. Wainwright (certificate). Medicine: E. L. Kennaway (prize). Second year's exhibition, H. G. Kilner; Leopold Hudson prize, M. L. Hine; Lyell medal and scholarship, A. C. Morson; the Governors' prize, M. L. Hine; Hetley

clinical prize, M. L. Hine; Freeman scholarship, F. E. W. Meadows; Broderip scholarship, M. L. Hine and F. E. W. Meadows; Entrance scholarship in arts, E. W. Wilson; Entrance scholarship in science, R. C. J. Douty; University scholarship, no award; and Freer Lucas scholarship, G. E. S. Ward.

DEVON AND EXETER DENTAL HOSPITAL.—Mrs. Nosworthy, of Dawlish, formally opened the new premises of the Devon and Exeter Dental Hospital on Sept. 28th in the presence of a large gathering. The new building was a gift from Mrs. Nosworthy and the committee appeals for a sum of £500 to defray the cost of furnishing.

PRESENTATION TO A MEDICAL PRACTITIONER.—At the Seamen's Institute, Portishead, on Sept. 21st, Mr. Charles A. Wigan, M.D. Durh., M.R.C.S. Eng., L.S.A., was presented with a fountain pen by members of the class of the St. John Ambulance Association held in connexion with the Seamen's Institute in appreciation of his services as honorary lecturer.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next meeting of the Northern and Midland Division of this association will be held, at the invitation of the committee of the David Lewis Epileptic Colony, at the Colony, Sandle Bridge, near Alderley Edge, Cheshire, on Thursday, Oct. 11th, at 2.30 P.M. The chairman of the committee, Mr. S. L. Helm, kindly invites members to lunch on the day of the meeting and it is proposed that members should dine together at the Midland Hotel, Manchester, should a sufficient number intimate their intention of being present.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Clinical Lectures on Enlargement of the Prostate. With a Description of the Author's Operation of Total Enucleation of the Organ. By P. J. Freyer, M.A., M.D., M.Ch., Surgeon to King Edward VII.'s Hospital for Officers and to St. Peter's Hospital, late Examiner in Surgery at the Durham University, Lieutenant-Colonel, Indian Medical Service (retired). Third edition. Price 6s. net.

On Retro-peritoneal Hernia. Being the "Arris and Gale" Lectures on "The Anatomy and Surgery of the Peritoneal Fossæ," delivered at the Royal College of Surgeons of England in 1897. By B. G. A. Moynihan, M.S., F.R.C.S. Second edition, revised and in part rewritten by the author and J. F. Dobson, M.S., F.R.C.S. Price 7s. 6d. net.

GLAISHER, HENRY J., 57, Wigmore-street, London, W. (WILLIAM WOOD AND COMPANY, New York.)

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D. Lond., Physician to the West-End Hospital for Diseases of the Nervous System, London, and to the St. John's Hospital for Diseases of the Skin. Third (revised and enlarged) edition. Price 7s. 6d. net.

METHUEN AND CO., 36, Essex-street, Strand, London, W.C.

Plant Life. Studies in Garden and School. By Horace F. Jones, F.C.S., late Assistant Instructor to Wilts County Council Nature Study Courses, and Lecturer in Nature Study, County Secondary School, Calne, Wilts. Price 3s. 6d.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

On the Principles and Exact Conditions to be Observed in the Artificial Feeding of Infants: the Properties of Artificial Foods; and the Diseases which Arise from Faults of Diet in Early Life. By W. B. Cheadle, M.A., M.D. Cantab., F.R.C.P., Consulting Physician to St. Mary's Hospital and to the Hospital for Sick Children, Great Ormond-street. Sixth edition. Edited and revised by F. J. Poynton, M.D. Lond., F.R.C.P. Price 5s.

SPRINGER, JULIUS, Berlin.

Tuberkulose-Arbeiten aus dem Kaiserlichen Gesundheitsamte 5. Heft. Deutsche Heilstätten für Lungenkranke. Geschichtliche und statistische Mitteilungen. III. Berichterstatter: Dr. Hamel, Regierungsrat im Kaiserlichen Gesundheitsamte. Price not stated.

UNWIN, T. FISHER, 1, Adelphi-terrace, London, W.C.

How to Buy a Business. A Guide to the Purchase of Retail and Other Businesses, Professional Practices, &c. With a Supplementary Chapter on Partnerships. By A. W. Bromley. Price 2s. 6d. net.

WOOD, WILLIAM, AND CO., New York.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., and Albert H. Buck M.D., of New York City. Complete in eight volumes. Vol. I. Price per volume, $7, $8, or $9, according to binding.

WYMAN AND SONS, LIMITED, Fetter-lane, Fleet-street, London, E.C.

Lessons on Elementary Hygiene and Sanitation, with Special Reference to the Tropics. By W. T. Prout, C.M.G., M.B., C.M. Edin.; Principal Medical Officer, Sierra Leone, Member of Legislative Council; Medical Officer of Health, City of Freetown; &c. Printed for the Colony of Sierra Leone. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ATTWOOD, R. D., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator to the No. 5 District of the Royston Union.

BAILIE, H. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Superintendent Medical Officer of Health of Belfast.

BERGIN, FRANK GOWER, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Bristol General Hospital.

BINGHAM, S. O., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health to the Alfreton District Council.

DANIELS, C. W., M.B. Cantab., M.R.C.S. Eng., has been appointed Physician to the Out-patient Department at the Seamen's Hospital Society, with duties at the Branch Hospital, to which is attached the London School of Tropical Medicine.

EDWARDS, ALBERT DAVIES, B.Sc. Lond., L.R.C.P. & S. Edin., L.F.P.S. Glasg., L.S.A., has been appointed Resident Medical Officer at the Cardiff Workhouse.

ESKELL, LOUIS BENJAMIN, L.D.S. Irel., has been appointed Honorary Dental Surgeon to the Winsley Sanatorium.

FISCHER, GEORGE ALFRED, M.B., B.S. Adelaide, has been appointed Honorary Surgeon to the Ear and Throat Department, Adelaide Hospital, South Australia.

GILES, WILLIAM ANSTEY, M.B., Ch.M. Edin., has been appointed Honorary Surgeon to the Adelaide Hospital, South Australia.

GREEN-ARMYTAGE, V. B., L.R.C.P. Lond., M.R.C.S., has been appointed Casualty Officer at the Bristol Royal Infirmary.

HAMILTON, A. A., M.B., Ch.B. Dub., has been appointed Honorary Assistant Physician to the Adelaide Hospital, South Australia.

HAYWARD, W. T., M.R.C.S. Eng., L.K.Q.C.P. Irel., has been appointed Honorary Physician to the Adelaide Hospital, South Australia.

MACDIARMID, R. C., M.B., M.S. Glasg., D.P.H., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Alyth District of the counties of Perth and Forfar.

MAPLETON, HENRY BANBURY, M.D., C.M. Edin. D.P.H. Lond., has been re-appointed Medical Officer of Health for the Newton Abbot (Devon) Rural District (for three years).

MORRIS, LEONARD NEWSOM, L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol General Hospital.

NIESCHE, F. W., M.D. Edin., has been appointed Honorary Physician to the Adelaide Hospital, South Australia.

PINNIGER, WILFRID JAMES HUSSEY, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Casualty Officer at the Bristol General Hospital.

POULTON, BENJAMIN, M.D. Melb., M.R.C.S. Eng., has been appointed Honorary Surgeon to the Adelaide Hospital, South Australia.

SANDWITH, FLEMING M., M.D. Durh., F.R.C.P. Lond., has been appointed Physician to Out-patients at the Seamen's Hospital Society, with duties at the Branch Hospital, to which is attached the London School of Tropical Medicine.

SHAW, ERNEST H., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer, Pathologist, and Registrar to the Metropolitan Hospital.

SHEPHERD, ARTHUR EDMUND, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Honorary Consulting Surgeon to the Adelaide Hospital, South Australia.

SMITH, FRANCIS SHINGLETON, M.C. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Weston-super-Mare Hospital.

STOREY, JAMES ALEXANDER, L.R.C.P. Edin., L.R.C.S. Irel., has been appointed Medical Officer to the Dunstable and District Joint Isolation Hospital.

SWIFT, HARRY, M.D. Cantab., has been appointed Honorary Assistant Physician to the Adelaide Hospital, South Australia.

SYKES, ARTHUR, L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Superintendent at the City Asylum, Norwich.

TAYLOR, MARK RONALD, L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer for the Wendron District by the Helston (Cornwall) Board of Guardians.

WATSON, ARCHIBALD, M.D. Paris, F.R.C.S. Eng., has been appointed Honorary Pathologist to the Adelaide Hospital, South Australia.

WILSON, M. R. O., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant House Physician at the Bristol General Hospital.

WRIGHT, A. J., L.R.C.P. Lond., M.R.C.S., has been appointed Junior House Surgeon at the Bristol Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with board and residence.

BURY ST. EDMUND'S, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £90 a year, with board and lodging.

CAPE TOWN, SOMERSET HOSPITAL.—Assistant Resident Medical Officer. Salary £200 per annum, with quarters and rations.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

FINSBURY DISPENSARY, Brewer-street, Goswell-road, E.C.—Resident Medical Officer. Salary £140 per annum, with furnished residence, attendance, &c.

HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.—Assistant Infirmary Medical Superintendent and Assistant Medical Officer. Salary £150 per annum, with board, apartments, washing, and attendance.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board and residence.

HOSPITAL FOR WOMEN, Soho square, W.—House Physician for six months. Salary £30.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £120 without board, or £80 with board, and £20 extra for dispensing.

LEEDS PUBLIC DISPENSARY.—Honorary Medical Officer.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary £50 per annum, with board, apartments, and washing. Also Resident Surgical Dresser for six months. Honorarium £10 10s., with board, lodging, and washing.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon (unmarried) for six months. Honorarium £25, with board, residence, and washing.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, Brunswick-square, W.C.—Mabel Webb Research Scholarship in Pathology, Physiology, and Chemistry. Value £30 a year.

MARGATE, ROYAL SEA BATHING HOSPITAL.—Resident Surgeon.

MEDICAL DEPARTMENT OF THE ROYAL NAVY.—Examination for not more than Six Commissions.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Surgeon. Also Assistant Surgeon.

NOTTINGHAM, CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, &c.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon, for six months. Salary at rate of 50 guineas a year, with board and residence.

ROYAL DENTAL HOSPITAL, Leicester-square, W.C.—Demonstrator of Practical Dental Surgery. Stipend £40.

SHEFFIELD, CITY OF.—Visiting Medical Officer for Schools. Salary £400 per annum.

STAMFORD HILL AND STOKE NEWINGTON DISPENSARY.—Junior Resident Medical Officer. Salary £100 a year with apartments and board.

TOTTENHAM HOSPITAL, London, N.—House Surgeon, House Physician, and Casualty Officer. Salaries £40 per annum respectively, with residence, board, and laundry.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Cummock, in the county of Ayr, and at Southall, in the county of Middlesex.

Births, Marriages, and Deaths.

BIRTHS.

ANDERSON.—At Newholme, Pitlochry, on the 30th Sept., the wife of John Anderson, M.B. & C.M. Edin., of a daughter.

BALDERSTON.—On Sept. 30th, at Westbourne-road, Forest Hill, S.E., the wife of Robert Balderston, M.B., of a daughter.

GOUGH.—On Sept. 25th, at Compton Martin, near Bristol, Somerset, the wife of Bernard Bradly Gough, M.R.C.S., L.R.C.P. Lond., of a daughter.

KENT.—On Oct. 1st, at Swiss Cottage, Dover, the wife of Charles A. Kent, M.D., of a son.

MARTIN.—On Oct. 1st, at The Chestnuts, Stroud, Glos., the wife of J. Middleton Martin, M.D., of a daughter.

MAY.—On Sept. 26th, at Park Mansions, Knightsbridge, the wife of W. Page May, M.D., of a daughter.

POTTS.—On Sept. 30th, at Wellesley-road, Great Yarmouth, the wife of Horace Potts, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

POYNDER.—On Sept. 7th, at Newbury, the wife of Lieutenant-Colonel J. L. Poynder, I.M.S., of a son.

MARRIAGES.

BIGG—HEWETT.—At St. Stephen's Church, Westbourne Park-road, W., on the 2nd inst., by the Rev. Charles Bigg, D.D., Canon of Christ Church and Regius Professor of Ecclesiastical History, Oxford, uncle of the bridegroom, assisted by the Venerable C. F. H. Johnston, M.A., late Archdeacon of Bombay, Edward Bigg, M.A., B.C. Cantab., L.R.C.P., M.R.C.S., of Cranleigh, Surrey, only son of the late Edward Bigg of Liverpool and Bombay, to Agatha Gertrude, second daughter of Edward Hewett, of 22, Prince's-square, W., formerly of Bombay.

DE CASTRO—LYNN.—On Sept. 26th, at St. Anselm's Church, Davies-street, Berkeley-square, George de Castro, M.R.C.S. Eng., L.R.C.P. Lond., to Lucy, youngest daughter of the late Palmer Lynn of Brighton.

TEASDALE—MCDOWELL.—On Sept. 27th, at the Cathedral, Waterford, by the Right Rev. the Lord Bishop of Cashel, assisted by the Very Rev. the Dean of Waterford, John Camidge Teasdale, M.B., M.R.C.S. Eng., of Retford, to Marion, daughter of the late D. McDowell, Esq., and of Mrs. McDowell, of Waterford, Ireland.

DEATHS.

CROMBIE.—On Sept. 29th, Brigade-Surgeon-Lieutenant-Colonel Alexander Crombie, C.B., M.D., I.M.S., retired, aged 60 years.

PHILLIPS.—On the 29th ult., at Inchford, Warwickshire, Frank Leslie Phillips, M.D., aged 49 years.—R.I.P.

STEWART.—On Sept. 23th, at Angelton, Bridgend, Robert S. Stewart, M.D., D.P.H.

THOMASON.—On Sept. 24th, at Dryvbridge House, Hereford, Richard Thomason, M.R.C.S., L.S.A., J.P., aged 77 years.

VISGER.—On Sept. 26th, at Lewisham, Harman Visger, M.R.C.S., only son of the late Harman Visger of Bristol, aged 58.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Short Comments, and Answers to Correspondents.

OUR FORGOTTEN DEAD.

WE have received the following communication for publication, which is interesting both on account of its intrinsic information and in view of a recent correspondence in the daily press concerning the legibility of the inscriptions on tombstones earlier than the eighteenth century. We have restored the Latin verses to the best of our ability but, as our correspondent implies, the copy of them sent was extremely corrupt and our emendations in most cases are very conjectural. In the eighth line it will be noted that the original composer of the inscription has been guilty of a false quantity and in line 9 "rediente," of course, should be "redeunte." There are various interesting points in the mortuary inscription of William Parmentier. One is the Italianised spelling of "jacent"; another is the use of the word "æra," which was not used in the sense of "era" before, apparently, the time of Isidorus, A.D. 637. The words "Medicatorum" and "Britanniorum" would be better Medicorum and Britanicorum. We have been unable to find anything about either Edmund Frank or William Parmentier, although the registrar and secretary respectively of the London Royal Colleges of Physicans and Surgeons have been good enough to search their annals to help us.

To the Editors of THE LANCET.

SIRS,—In a little used and rarely visited graveyard on the hill above Pera are a number of headstones which were moved some 40 years ago from the original English cemetery in Constantinople. These stones were rescued from oblivion and by the kindly hands of the Rev. Mr. Anketell, late chaplain to the British Embassy, were carefully arranged around the walls of the Feri Keui cemetery. Many have an almost historic interest, recording as they do the virtues of original members of the Right Worshipful Levant Company. Amongst them are three which I venture to think may be worthy of a passing notice in your columns. I do not know whether the annals of the Colleges of Physicians or of Surgeons contain the names of Edmundus Frank who died here in 1647 or of William Parmentier who died in 1768, but that George Barron Brown who was laid to rest in 1858 was an elder brother of the late Mr. Lennox Browne, the throat specialist of our days.

I have copied the inscriptions to the best of my ability but they are becoming as illegible as my Latin is faulty; I trust you may be able to translate them.

I am, Sirs, yours faithfully,

Constantinople. C. B. NORMAN.

Hic situs est EDMUNDUS FRANK.
Generosus Anglus Londini
Natus Med. D. Clarissimus
Qui post annos sedecim
Constantinopoli cum laude
Exactos obiit Janº 4º
Anº Xti 1647.
Herbipotens jacet hoc Franckus sub marmore clausus,
Quo vix Paieon plenior artis erat.
Invida mors toties hujus retro acta medelis
Contra ipsum vires exserit illa suas.
Nec tunc ausa palam est in aperto Marte, sed illi
Subdola leiferas clam struit insidias.
Sublato victore suo, nunc illa triumphat,
At posthac illi (? isti) quoque triumphus erit.
Archiatro siquidem Christo rediente canore
Ingenti, audibit Plaudite! mors obiit.

Hic giacent Reliquiae
GIULELMI PARMENTIER GENEROSI
Ex societate Medicatorum Britanniorum
Galata Constantinopolis
Natus est die XXIV Martii anno
Aerae Christianae MDCCXX
Obiit die XI Octobris Anno
Ejusdem MDCCLXVIII
Morte intempestiva vir morum
Probus et mansuetus
Cognatis et familiaribus deploratus
Johanna conjux dilecta
Monumentum hoc
Moerore posuit.

Sacred to the Memory
Of
GEORGE BARRON BROWN
Medical Officer
In the Turkish Service
Eldest son
Of Isaac Baker Brown Esqr:
of London
Died on the 11th day of January 1858
at Constantinople.

CIRCULARS AND ADVERTISEMENTS.

To the Editors of THE LANCET.

SIRS,—Considering the vast number of monographs, descriptive advertisements of medicinal preparations, &c., which are showered at the present time on members of the medical profession, it is desirable both in the interests of the advertisers and those whom they

seek for clients that these documents should have a uniform format, both in size (I suggest medium 8vo) and in quality of paper (not too thick) so that those which have any permanent value may, either by binding or otherwise, be preserved together. The above suggestion is calculated to benefit other professions than the medical, but with these I am not concerned.

I am, Sirs, yours faithfully,
Strawberry-hill, Sept. 29th, 1906. G. P. BEST, M.B. Cantab.

A COINCIDENCE.

To the Editors of THE LANCET.

SIRS,—During last year a very curious coincidence occurred in my practice—three practitioners, all strangers to one another, whose names appear consecutively in the Medical Directory, being in consultation on the same case, a railway accident. The surnames were all the same and each Christian name was Frederick, one being the railway surgeon, one a consultant to a London hospital as expert, and the other myself. I am, Sirs, yours faithfully,
Newington-causeway, S.E., Sept. 26th, 1906. FREDK. W. SMITH.

THE NEW SPELLING.

To the Editors of THE LANCET.

SIRS,—On page 818 of THE LANCET I read: "Some will wonder why 'lachrymal' should become 'lacrimal' except with a view to conceal more effectually its origin." Surely the Latin origin of this word is effectually concealed by spelling it "lachrymal"?

I am, Sirs, yours faithfully,
Sept. 21st, 1906. OXONIENSIS.

*** Johnson gives "lachrymal" in his dictionary. The correct Latin form, according to both Facciolati and Lewis and Short, is "lacrima," or old form "lacruma." Facciolati gives all derivatives as "lacry-." Lewis and Short, who say "not lacryma," however, give lacrimosus, or lacru- or lacry-. Lacruma, is often stated to be derived from δάκρυ and *d* and *l* were interchangeable in Greek and Latin; cf. ἀλειφαρ, adeps. The new Oxford English Dictionary gives "lachrymal" under that spelling with all words similarly derived, referring back to it under "lacrymal." As to the etymology Dr. Murray says: "The *ch* of the prevailing spelling of this and the related words is due to the Middle Latin practice of writing *ch* for *c* before the Latin *r*; compare anchor, pulchritude, sepulchre. The *y* in Middle Latin, a mere graphic variant of *i*, has been retained in modern English orthography from the erroneous notion that lacrima is an adoption of Greek δάκρυμα. The theoretically correct spelling lacrim- has at present no currency but some writers have adopted the half correction lacrym-." Dr. Murray describes these words as "cognate with δάκρυ" but does not evidently regard them as, strictly speaking, derived from it and the "simplified spelling" is the more correct etymologically although it departs from a well established usage.—ED. L.

LOOKING BACK.

To the Editors of THE LANCET.

SIRS,—My attention has been drawn to the reprinted letter which appeared in your last issue under this heading. There can, I am sure, be nothing more amusing and delightful than the reprint of interesting records of the past, but the letter to which I allude can only be described as a vulgar and offensive libel, and not even amusing at that. I venture to think that if the researches into the archives of your valuable paper were conducted with a little more good taste and discretion many of your readers would be far better pleased.

I remain, your obedient servant,
A. MOWBRAY UPTON, Clerk to the Society.
Society of Apothecaries of London, Blackfriars,
London, E.C., Oct. 3rd, 1906.

*** The extract in question was not, we need hardly say, inserted with any intention of hurting the feelings of the Clerk to the Society of the Apothecaries or of anyone connected with that ancient and excellent institution. The fact that abuses existed in 1828 surely is not likely in any way to lower the estimation in which the Society is rightly held in 1906 by reason of the good work which it has since done and is now doing.—ED. L.

A WARNING.

To the Editors of THE LANCET.

SIRS,—A gentleman practising in Maida Vale has just informed me that a man who passed himself off as me called on him and obtained a small sum of money. The police have been communicated with, but a timely warning published here may save annoyance.

I am, Sirs, yours faithfully,
R. KIRKPATRICK.
British Museum (Natural History), S.W., Sept. 28th, 1906.

THE USE OF ALCOHOLIC FLUIDS IN MEDICINE.

To the Editors of THE LANCET.

SIRS,—In a well known medical publication of this month there are some strongly worded "notes" on the prevailing "fashion" of the profession in its attitude towards the alcohol question. From time to time I have made an honest if feeble effort to plead for the value of clinical experience in this matter as opposed to that of pure physiological research. I cannot believe that Sir Victor Horsley really voiced the opinion of the majority of practical clinicians in his speech at the meeting of the British Medical Association. It is hardly creditable to us as a profession that the public should find us apparently so absolutely at variance on a matter of such prime importance to them and to us. Is it not high time that an authoritative commission were appointed to inquire into the question in all its bearings and publish their findings to the world at large? I am, Sirs, yours faithfully,
Brighton, Oct. 1st, 1906. A. H. COPEMAN.

A DEPARTURE IN AGENCY ROUTINE.

To the Editors of THE LANCET.

SIRS,—With reference to your remarks in THE LANCET of Sept. 29th we are unable to recognise the "Departure in Agency Routine" you refer to. It is usual for agents to charge commission on payments made by resident patients introduced and the only "departure" of which we are guilty is in charging about 50 per cent. less than other agents. At the same time we shall be grateful for any criticism that you and your correspondents are good enough to make in order that we may meet the views expressed by the profession. Our anxiety is to give the best possible work as agents at the lowest possible cost to practitioners. I am, Sirs, yours faithfully,
H. G. SALTER, Secretary.
The Southern Medical and Scholastic Agency, Limited,
Oct. 2nd, 1906.

A FALLING BIRTH-RATE?

To the Editors of THE LANCET.

SIRS,—On Oct. 16th, 1905, I attended a young married woman, aged 20 years, and delivered her of twin girls. Last Tuesday, Sept. 25th, 1906, I delivered her of twin boys. She has thus four babies considerably under 12 months old. I do not know if this establishes a record of the kind. Some years ago (with my brother, since dead) we delivered a woman of triplets, two of whom are still alive and flourishing, but that is nothing in my mind to this case. The husband is only an agricultural labourer and I am raising a small local subscription. If any of your readers care to spare a shilling or two for this case I shall be glad to acknowledge the amount personally and through your columns. I may add that this morning mother and all four children were very well.

I am, Sirs, yours faithfully,
Loddon, Norwich, Oct. 1st, 1906. J. LYNDSAY RODWELL.

Mr. J. E. Storey.—The Horace Dobell lecture is delivered every two years.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), West minster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat,

Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (13th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (8th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8 P.M.: Annual Meeting. 8.30 P.M.: Introductory Address:—Mr. C. A. Ballance (Incoming President): Then and Now in Surgery. Paper:—Mr. T. H. Kellock: Actinomycosis of the Vermiform Appendix.

WEDNESDAY (10th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M.: Meeting

HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M.: Hunterian Lecture:—Dr. J. K. Fowler: The Diagnosis and Treatment of Thoracic Aneurysm.

THURSDAY (11th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M.: Specimens will be shown by Mr. F. B. Jessett (President), Dr. H. Macnaughton Jones, and Dr. H. Overy.

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M.: Papers:—Dr. A. Morison: The Cardio-Vascular State in Asphyxia Neonatorum and its Management.—Mr. H. T. Herring: Easy Methods of Sterilising Urethral Instruments

NORTH-EAST LONDON CLINICAL SOCIETY (Tottenham Hospital, N.).—4 P.M.: Address:—Sir Halliday Croom: The Obstetrical and Gynæcological Relations to Exophthalmic Goitre.

FRIDAY (12th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M.: Address:—Mr. H. H. Clutton (President): Adolescent (late) Rickets (illustrated by lantern slides and cases). Followed by a Discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

MONDAY (8th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M.: Lecture:—Mr. J. Cantlie: Hepatic Abscesses met with in Britain.

TUESDAY (9th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. C. T. Williams: Clinique. (Medical.) 5.15 P.M.: Lecture:—Dr. J. Morrison: The Indications for Instrumental Interference in Labour.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Beevor: Cerebral Anatomy and Localisation.

CHARING CROSS HOSPITAL.—4 P.M.: Mr. Waterhouse: Demonstration (Surgical) (Post-Graduate Course.)

WEDNESDAY (10th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. 4.30 P.M.: Lecture:—Mr. C. B. Keetley: Opening Address of Winter Session

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. A. H. Tubby: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. H. L. Jones: Rodent Ulcer and its Treatment by Zinc Ions

THURSDAY (11th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Diseases of the Eye. 5 P.M.: Lecture:—Practical Surgery.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique (Surgical.) 5.15 P.M.: Lecture:—Dr. C. Mercier: Some Aspects of Drunkenness.

CHARING CROSS HOSPITAL.—4 P.M.: Dr. Macleod: Demonstration (Dermatological). (Post-Graduate Course.)

FRIDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin. 5 P.M.: Lecture: Surgical Cases.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. StClair Thomson: Clinique. (Throat.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture: Dr. Beevor: Cerebral Anatomy and Localisation.

SATURDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 4th, 1906.

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall.	Solar Radia. in Vacuo	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 28	30·52	S.	..	63	62	45	49	50	Foggy
,, 29	30 30	S.E.	...	88	64	48	49	51	Foggy
,, 30	30·25	N.	0·37	94	66	49	49	52	Foggy
Oct. 1	30 08	S.	0·33	101	70	49	54	56	Overcast
,, 2	29 75	S.W.	...	71	64	55	61	62	Raining
,, 3	29 74	N.W.	...	92	64	57	55	58	Cloudy
,, 4	29 95	S.W.	..	102	65	56	56	58	Fine

During the week marked copies of the following newspapers have been received: *Westminster Gazette, The Tribune, Glasgow Herald, Leicester Post, Cardiff News, Sheffield Telegraph, Sheffield Independent, Yorkshire Herald, Dublin Times, Stafford Sentinel, Belfast Whig, Cardiff Times, Watford Observer, Revue Scientifique, Revue Française de Médecine et de Chirurgie, Belfast News, Hereford Times,* &c.

Communications, Letters, &c., have been received from—

A.—Messrs. Adlard and Son, Lond.; Association of Public Vaccinators of England and Wales, Lond., President and Council of; Dr. F. S. Arnold, Wallingford; A Scot; A. M. R., Lond.

B.—Dr. G. P. Best, Twickenham; Mr. Henry S. Bennett, Durban; Mr. S. William Beck, Lond.; Mr. Charles Blair, Tillicoultry; Mrs. S. A. Barnett, Lond.; British Druggists, Lond., Secretary of; Dr. E. Bauer, Neuchâtel; Mr. Albert Benthall, Lond.; Board of Agriculture and Fisheries, Lond.; *British and Colonial Druggist*, Lond., Editor and Staff of; T. B. Browne, Ltd., Lond.; Mr. A. K. Baldwin; Tunbridge Wells; Dr. D. Bower, Bedford; Dr. S. Bernheim, Paris; B. A. E., Lond.

C.—Dr. E. M. Corner, Lond.; Messrs. Cassell and Co., Lond.; Messrs. E. Cook and Co., Lond.; Mr. Stanley Colyer, Lond.; Dr. George Chappel, Lond.; Messrs. Cadbury Bros., Bournville; Central London Ophthalmic Hospital, Secretary of; C. R. G.

D.—Mr. A. Donnamette, Paris; Dr. Margaret B. Dobson, Wakefield; Donegal District Lunatic Asylum, Letterkenny, Resident Medical Superintendent of; Drogheda Memorial Hospital, Curragh Camp.

E.—Dr. G. G. Ellett, Cirencester; Messrs. Evans, Sons, Lescher, and Webb, Lond.

F.—Dr. Cavendish Fletcher, Lond.; Fife; Dr. A. Freeland Fergus, Glasgow.

G.—Dr. E. A. Gates, Florence; Mr. H. R. Gawen Gogay, Southchurch Beach; Miss Goffe, Lond.; Messrs. Gale and Co., Lond.; Mr. E. Guarini, Lima, Peru; Mr. Thomas Guthrie, Lond.; Mrs. N. E. Glanville, Lond.; Messrs. G. Gillies and Co., Glasgow; Messrs. J. E. Gibson and Co., Falkirk; The Guild of St. Luke, Lond., Registrar of; Mr. M. N. Gandevia, Lond.

H.—Mr. Reginald Harrison, Lond.; Messrs. Hastings Bros., Lond.; Messrs. Hirschfeld Bros., Lond.; Dr. T. J. Horder, Lond.; Captain A. H. Hayes, R.A.M.C., Subathu, India; H. S.; Captain J. H. Hugo, I.M.S., Lond.; Messrs. C. J. Holt and Co., Manchester; Mr. A. H. Harrison, Lond.; Messrs. Haasenstein and Vogler, Geneva; Dr. F. P. T. Hilliard, Billericay.

I.—International News Co., Lond.; Institute of Hygiene, Lond., Secretary of.

J.—Mr. George Jackson, Plymouth.

K.—Mr. C. B. Keetley, Lond.; Kidderminster Infirmary, Secretary of; Messrs. R. A. Knight and Co., Lond.

L.—Mr. H. K. Lewis, Lond.; Miss Z. Longstaff, Lond.; Messrs. Lee and Nightingale, Liverpool; Mr. E. B. Lyde, Lond.; L. F. L.; Leeds Public Dispensary, Secretary of; Leicester Infirmary, Secretary of; Dr. W. Lane, Weymouth; London Hospital Medical College, Warden of.

M.—Mr. W. Martindale, Lond.; Manchester Royal Infirmary, Secretary of; Messrs. Merryweather and Sons, Lond.; Mr. G. H. Makins, Lond.; Mission to Lepers in India and the East, Lond., Organizing Secretary of; Metropolitan Reporting and Shorthand Writing Agency, Lond., Manager of; Middlesex Hospital, Lond., Secretary-Superintendent of; Maltine Manufacturing Co., Lond.

N.—Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.; Nottingham City Asylum, Clerk of; Duke of Norfolk, Lond.; Dr. J. B. Nias, Lond.; Mr. A. W. Nuthall, Birmingham.

P.—Mr. S. Pestanji, Karachi, India; Dr. S. D. Paraskevopulos, Tripolitza, Greece; Mr. T. Prince, Donhead; Messrs. Peacock and Hadley, Lond.

R.—Mr. A. Rayner, Slough; Messrs. Robertson and Scott, Lond.; Mr. J. M. Randle, Ruan Minor; Dr. Alonzo G. Rider, Devonport; Royal College of Surgeon of England, Lond., Secretary of; Royal College of Physicians, Lond., Registrar of; Messrs. E. J. Reid and Co., Lond.; Royal Mail Steam Packet Co., Lond., Chairman and Court of Directors of; Royal Albert Asylum, Lancaster, Secretary of; The Retreat, York, Secretary of.

S.—Mr. J. E. Storey, Manchester; Dr. David Sommerville, Lond.; Stamford Hill Dispensary, Lond., Secretary of; St. Andrew's Hospital, Northampton; Messrs. Sherratt and Hughes, Lond.; Mr. Charles E. Sohn, Lond.; Staffordshire, County Medical Officer of; Dr. Redcliffe N. Salaman, Barley; Scholastic, Clerical, &c., Association, Lond.; Messrs. Street and Co., Lond.

T.—Dr. F. S. Toogood, Lond.; Dr. H. A. Turpin, Trinidad; Mr. Hugh Taylor, Llandovery; Mr. T. Pridgin Teale, Leeds; Mr. A. Trewby, Walney Island; Mr. W. A. F. Twemlow, Flackwell Heath.

V.—Mr. J. W. Vickers, Lond.

W.—Mr. S. H. L. Woods, Lond.; Messrs. Wyman and Son, Lond.; Messrs. Watney, Combe, Reid, and Co., Lond., Secretary of; W. B.; Dr. Sydney Whitaker, Liverpool; Dr. S. P. Wernich, Somerset Strand; Dr. G. Bennington Wood, Sandown; Mr. Llewellyn Williams, Lond.; Dr. Essex Wynter, Lond.; Mr. C. G. Watson, Lond.; Dr. C. M. Wenyon, Munich; Dr. H. A. Watson, Worcester; Mr. H. Withers, Bristol; West Suffolk General Hospital, Bury St. Edmunds, Secretary of; Dr. R. T. Williamson, Manchester; Dr. Wyatt Wingrave, Lond.; Messrs. H. Wilson and Son, Lond.; Mr. Penrose Williams, Bridgwater.

Y.—Dr. Meredith Young, Stockport; *Yorkshire Herald*, York; Mr. Harry Young, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Miss Ainscourt, Maidstone; Dr. E. Ash, Lond.; A. L. J.; Messrs. Allen and Hanburys, Lond.; Apollinaris Co., Lond.; A. W. T.; Mr. S. Arnold, Lond.; A. R.

B.—Mr. J. A. Barth, Leipzig; *Birmingham Daily Post*, Manager of; Mr. F. N. Brown, Frimley; Mr. F. E. Bennett, Margate; Colonel S. H. Browne, I.M.S., Newcastle, County Down; Captain F. Barnardo, I.M.S., Bombay; Benger's Food, Manchester, Secretary of; Mr. W. G. Burcombe, Lincoln; Messrs. Battle and Co., Paris; Mr. R. W. Burkitt, Athenry.

C.—Mr. W. Corkey, Ebbw Vale; Mr. W. C. Cox, Lond.; Messrs. T. Christy and Co., Lond.; Caterham Sanitarium, Medical Superintendent of; Cantab, Lond.; Cheshire County Asylum, Macclesfield; Messrs. J. W. Cooke and Co., Lond.

D.—Durham University College of Medicine, Newcastle-on-Tyne, Secretary of; Doctor, Hereford.

E.—Mr. H. T. Evans, Blackwood, Monmouthshire.

F.—Dr. C. E. Fish, Ruthin; F. E. T.

G.—Mr. W. Griswood, Liverpool; G. B.; Guest Hospital, Dudley, Secretary of; Messrs. Giles, Schacht, and Co., Clifton; Mr. B. B. Gough, Compton Martin; Dr. W. Gilfillan, Falkirk.

H.—Mr. W. W. Hewitt, Dedham; Mr. J. T. Hyatt, Shepton Mallet; Messrs. Hooper and Co., Lond.; H. J. H.; Mr. W. Hart, Lond.; Mr. P. E. Hoyland, Rotherham; Dr. W. H. Hill, Old Basford; Mr. W. G. Harris, Westcliff on-Sea; H. S. D. G.; Messrs. C. J. Hewlett and Son, Lond.; Mr. F. E. Heubeck, Cwmaman.

I.—Miss Inge, Haslemere.

J.—Mr. H. J. Jukes, Newport, Essex; J. H., Lond.; J. W. W.; J. D. M.

K.—Messrs. Kirby and Co., Lond.

L.—Dr. M. E. Leicester, Lerryn; L. H.; Mr. C. B. Lockwood, Lond.

M.—Mr. L. Mackay, Pitlochry; Messrs. May, Roberts, and Co., Lond.; Messrs. McKesson and Robbins, New York; M. B.; Manchester Medical Agency; M. B. D.

N.—Dr. T. Nicol, Aberdeen; N. B.; N. M. A.; Newhaven Urban District Council, Clerk to the; Newport and Monmouthshire Hospital, Secretary of.

O.—O. G.

P.—Mr. E. A. Piggott, Clare; Mr. P. B. Palmer, Yeovil; Messrs. Philip, Son, and Nephew, Liverpool; Painswick Sanatorium, Gloucester, Medical Superintendent of; Dr. W. H. Price, Shelton Colliery; P. K.

R.—Dr. A. Ransom, Bournemouth; Rebman, Ltd., Lond.; R. H.

S.—Dr. S. J. Sharkey, Lond.; Dr. G. F. Still, Lond.; Mr. T. Sanders, Lond.; Messrs. E. R. Squibb and Sons, New York; Messrs. Spiers and Pond, Lond.; S. D. S.

T.—Mr. W. Tuppen, Hove; T. W.; Transvaal Medical Society, Johannesburg, Secretary of; Mr. J. Thin, Edinburgh.

W.—Mrs. R. Witty, Mortlake; Mr. C. B. Wills, Barnstaple; Messrs. J. K. Wilson and Co., Glasgow; Mr. C. G. Russ Wood, Shrewsbury; Mr. W. F. Walker, Dinas Mawddwy; W. H. S.; Mr. J. Williams, Bradford; Messrs. F. Williams and Co., Lond.; W. T. M.; W. M.; W. W.; Mr. A. M. Wisely, York; Dr. G. H. W. Winch, Northallerton; Western General Dispensary, Secretary of.

Z.—Messrs. A. and M. Zimmermann, Lond.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d. Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.